

# HARDGOODS AND PACKAGED GAS

P O R T F O L I O



SINGLE POINT OF CONTACT  
FOR YOUR WELDING, CUTTING AND FABRICATION NEEDS

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## About - Pakistan Oxygen Limited

### Oxygen for life and sustainable growth

Pakistan Oxygen continues to touch the lives of millions of people every day as a trusted solution provider with a commitment towards safety, operational excellence and innovation. We have a strong presence in the welding consumables and hardgoods market as a one-stop-shop for all the welding needs of our customers. We offer wide range of welding electrodes & wires, gas regulators & control equipment, auto-darkening helmets, cutting, & grinding discs, welding machines etc.

Our customer-centric approach focuses on not just selling products but on building and nurturing a relationship to understand and meet our customers' needs of today and tomorrow.

With 87+ years legacy of trust, Pakistan Oxygen is your partner to explore the exciting possibilities of the future.



# Strong Legacy

1935	Indian Oxygen and Acetylene Company.	2010	BOC Pakistan announces Rs. 2 billion investment to build Pakistan's largest air separation plant in Lahore capable of producing up to 150 tons per day.
1949	The Company was incorporated as a private limited company under the name of Pakistan Oxygen and Acetylene Company Limited.	2011	BOC Pakistan rebrands as Linde Pakistan on 19 September.
1957	The Company's name was changed to Pakistan Oxygen Limited.	2012	New state-of-the-art Air Separation Unit (ASU), the largest air separation plant in the country commissioned at Sunder Industrial Estate, Lahore.
1995	Renamed as BOC Pakistan Ltd; no change in pattern of shareholding.	2014	Linde Pakistan invests in a new state-of-the art nitrogen generator at PARCO refinery in Qasba Gujrat.
1997	BOC Pakistan becomes a strategic partner for Lotte PTA; installs Pakistan's largest air separation unit at that time capable of producing up to 100 tons per day.	2016	Carbon dioxide compression facility commissioned at West Wharf site in Karachi.
2000	Becomes a strategic supplier for PARCO, the country's largest refinery, through on-site MicroLN generator; also sets up an ASU at Taxila for meeting increased oxygen, nitrogen and argon demand in northern Pakistan.	2018	Linde Pakistan Limited rebrands as Pakistan Oxygen Limited after acquisition of majority shareholdings of the Company by Adira Capital Holdings (Private) Limited ("Adira") and its affiliates; inaugurated Sukkur compression site.
2004	BOC Pakistan invests in a 60 tons per day carbon dioxide plant in Multan to meet the demand from the beverage sector in Pakistan.	2019	Inaugurated Electrode Manufacturing Plant at West Wharf site in Karachi.
2008	Invests Rs. 214 million in a 23 tons per day carbon dioxide plant at Port Qasim to ensure reliable product availability for key beverage customers.	2020	Gas chromatography instrument in Speciality gases lab.
2009	New nitrous oxide plant commissioned at Lahore.	2021	Approval of 105 TPD ASU in KPK province & 11 TPD electrode manufacturing facility at Port Qasim, Karachi.

# 1935 – 2021

A comprehensive solution provider

Zodian  
Universal™  
E6013

Fortrex  
E7018™

Matador 47™  
斗牛士

Matador 48™  
斗牛士

HERO  
WELD



SAFFIRE™  
WELDING PRODUCTS

SAFFIRE™  
WELDING PRODUCTS  
lite

POL GRIND®

POL CUT®

POLHARD 650™

FELIX

Pakistan Oxygen is a leading industrial and medical gases company. It operates three air separation units producing oxygen, nitrogen and argon along with hydrogen, nitrous oxide, dissolved acetylene and carbon dioxide plants to serve a wide spectrum of customers. Our solutions help to improve processes, reduce costs and enhance productivity for our customers. We aim to aggressively grow and lead the market in safety & reliability with innovative solutions for industrial and medical gases, products and engineering services. Our legacy of 85 years is a testament that Pakistan Oxygen is your most trusted partner to explore the exciting possibilities of the future.

With a strong footprint we also have the most extensive fleet of distribution services consisting of cryogenic tankers and cylinder trucks to be able to serve our customers regardless of where they are located.

Our teams of engineers and market specialists work with customers to understand their business needs and their existing processes to develop gas applications that are tailored specifically to their requirement. Our highest quality controls ensure quality and safety compliance as per national regulatory requirements. Our cylinders are routinely tested and certified to ensure that we deliver safe packaging to our customers.

Innovation is at the core of Pakistan Oxygen and we constantly strive to provide unique value-adding services and products for discernible competitive advantages, and a greater profitability for our customers. A world-class and unique smart-phone supported application to track, manage and maintain gas cylinders. The application integrates with SAP to provide data that enables better asset control. It allows customers to have real time data on filling pressure, quantity, production and expiry dates, etc. Additionally, it digitalizes maintenance records of cylinders that results in improved cylinder safety, better compliance and superior customer experience.

For more details our Material Safety Data Sheets (MSDS) are available at [www.pakooxygen.com](http://www.pakooxygen.com).

# Packaged Gases

## Our Products

### INDUSTRIAL GASES

- Oxygen
- Dissolved Acetylene
- Argon
- Carbon dioxide
- Nitrogen
- Hydrogen

### SPECIALTY GASES

- Helium
- Zero Air
- Rare gases
- Ultra-high purity gases
- Calibration mixtures
- Process mixtures



# Packaged Gases

## Oxygen

### Chemical Composition

Purity Level	98% - 99.6%
Typical Filling Pressure	137 bar - 200 bar

### Hazard Symbols

- Contact with combustible material may cause fire
- May explode if heated
- May cause or intensify fire, oxidizer



### Applications

- In cutting of metal, welding applications, metal treatment and laser application
- In steel, non-ferrous and glass industries as supplement or to replace air in burners in order to obtain higher temperatures
- In mixtures with hydrogen for welding, brazing and glass blowing
- Injecting oxygen into sewage treatment plants accelerates the decomposition of sewage
- In the food industry, for transportation of live fish and seafoods. Used either unadulterated or in blends with carbon dioxide as well as nitrogen for modified atmosphere packaging (MAP)
- Enrichment of air during fermentation chemical synthesis also relies on oxygen
- Aviation industry also uses oxygen for commercial, airline and defense agencies



## Dissolved Acetylene

### Chemical Composition

Purity Level	98% - 98.5%
Typical Filling Pressure	Variable

### Hazard Symbols

- Heating may cause an explosion
- Explosive with or without contact with air
- Extremely flammable



### Applications

- Used in combination with oxygen for cutting or welding materials such as mild steel, where the standard industrial grade is enough. With low phosphine levels it is used for lead brazing or welding
- As a raw material in the production of electrically conducting plastics, such as polyacetylene
- Serves as a component in calibration gases for Oil & Gas and chemical industry
- With high purity synthetic air or nitrous oxide it is used as a fuel for the flame in atomic absorption flame spectroscopy
- It is used in organic synthesis (laboratory work) as well as in chemical synthesis



# Packaged Gases

## Argon

### Chemical Composition

Purity Level	99.99% - 99.999%
Typical Filling Pressure	137 bar

### Hazard Symbols

- Compressed gas may explode if heated



### Applications

- As a protecting gas for arc welding
- As an insulation gas in high-efficiency multi-pane windows. It is also one of the principal gases used for filling incandescent (filament) lamps
- Utilized in sputtering, plasma scratching and particle implantations and as a sweeping air in gem development
- As a blanket gas in the graphite furnace
- The Argon-Oxygen Decarburizing (AOD) process is used for refining stainless steel and uses large quantities of both gases supplied either in liquid form or via pipeline from an on-site plant
- Used in the prevention of oxidation of molten metals and alloys and for degassing and desulphurization of molten steel and iron baths, in the iron and steel industry
- The pharmaceutical industry utilizes argon to remove oxygen in intravenous medication
- Argon is utilized, regularly in blends with nitrogen and carbon dioxide, as a fire quenching gas



## Carbon Dioxide

### Chemical Composition

Purity Level	99.9%
Typical Filling Pressure	Variable

### Hazard Symbols

- Compressed gas may explode if heated



### Applications

- In mixtures for car emission and environmental monitoring
- In chemical industries and curing water by acting as a neutralizing agent for pH control
- As a pressurized gas in consumer products due to its inexpensive and non-flammable nature
- Once mixed with ethylene oxide is used as a fumigant for eliminating insects in grain silos or dates
- In carbonated beverages such as soft drinks
- In green houses, it is used to boost plant growth rates by modifying the surrounding atmosphere
- Once combined with Nitrogen, it is used in food packaging applications (MAP- Modified Atmosphere Packaging) to prolong the quality of food items
- With helium and nitrogen, as the active medium in carbon dioxide lasers
- Used for foam blowing
- Solid carbon dioxide (dry ice) is used as blasting agent and for food transport freezing
- Fire extinguisher
- It is utilized to solidify a wide assortment of fragile food items





## Nitrogen

### Chemical Composition

Purity Level	99.99% - 99.999%
Typical Filling Pressure	137 bar - 200 bar

### Hazard Symbols

- Compressed gas may explode if heated



### Applications

- In large quantities for blanketing, purging and pressure transfer of flammable chemicals for the chemical industry. Nitrogen is also used as a fire extinguishing gas in mines
- As a zero gas for diagnostic instruments
- It is also utilized as a balance gas in blends
- Extensively either pure or more commonly in a mixture with natural gas, to provide an oxygen free atmosphere during heat treatment of various metals
- Tires are often filled with nitrogen to prevent them from losing pressure and for limiting the risk of blow-outs
- It is utilized in liquid state to solidify a wide assortment of fragile food items



## Hydrogen

### Chemical Composition

Purity Level	99.98% - 99.999%
Typical Filling Pressure	137 bar - 200 bar

### Hazard Symbols

- Extremely flammable
- Compressed gas may explode if heated



### Applications

- High purity hydrogen is used as a reducing agent and as a carrier gas in gas chromatography
- In leak testing applications
- Used for combustion in the laboratory; it is used in analyzer flames, reducing flame photometry detection instruments, flame ionization detection instruments, and fuel cells
- As a coolant gas in turbo generators for electrical power plants
- Used for synthesis of ammonia and serves as a fuel in fuel cell applications
- It is also used extensively in the metals industries and when heat treating stainless steel
- In the production of carbon steels, special metals and semiconductors
- Hydrogen is used for the hydrogenation of vegetable and animal oils to produce margarine and other fats
- For hydro-treatment of petroleum products, and hydrodesulfurization of fuels in order to eliminate Sulphur



## SPECIALTY GASES

Speciality gases include rare gases, extremely pure gases and gases of the highest mixing accuracy, which are used in very demanding application by a wide range of industries. Pakistan Oxyegn is a leading specialty gases manufacturer and distributor.

### Helium

#### Chemical Composition

Purity Level	99.999%
Typical Filling Pressure	200 bar

#### Hazard Symbols

- May explode if heated



#### Applications

- Calibration gas and balance gas in calibration mixtures. Gas chromatography also uses helium as a carrier gas
- It is used extensively in the welding industry as a shielding gas
- As a constituent in neutral atmospheres e.g., in heat treatment applications requiring a protective atmosphere
- Used with leak detectors for authenticity of fabricated components and systems
- With argon and neon, helium is used for filling electronic tubes
- For filling toy balloons (in mixtures with Nitrogen), airplane tyres, advertising blimps and geostationary balloons
- As a carrier gas and purge gas for a variety of semiconductor processes
- For analytical instruments, helium serves as a zero(span) gas
- As an inflating gas in air bags



### Zero Air

#### Chemical Composition

Purity Level	99.5%
Typical Filling Pressure	137 bar - 200 bar

#### Hazard Symbols

- Compressed gas may explode if heated



#### Applications

- Air is a mix of oxygen and nitrogen. It supports burning, respiration of plants and animals, decay and industrial oxidations
- Air is used in medical gas mixtures and as an oxidizer for flame ionization detectors in chromatography and total hydrocarbon analyzers
- As a balance gas for many calibration gases
- As a zero gas in the running and calibration of environmental monitoring and test measurements where levels of sulphur and nitric oxides can affect the measurement equipment



### Rare gases

Pakistan Oxygen is a supplier of rare gases used in medical, lighting, laser, processing and LCD/PDP display applications.

### Ultra-high purity gases

Ultra-high purity gases provide standard data for zero-point corrections in the manufacturing process. They are thus essential in experiments, research, production of semiconductors, petrochemicals and in environmental sector. They are also used as a carrier gas for a variety of analytical equipment and as sealing gases for light bulbs.

### Calibration mixtures

Calibration mixtures are the norm for all measuring equipment and every process and therefore require strict accuracy in mixing ratios and measurements. They are used to calibrate industrial and research grade analytical equipment to manage processes and quality.

### Process mixtures

Process mixtures are either mixed continuously on site from pure gases or supplied pre-mixed. Process mixtures are used in the metal fabrication, food, medical and lighting industries.



Pakistan Oxygen is a leading manufacturer and supplier of welding consumables. A successful welding task is a combination of right shielding gas coupled with the right filler material. To ensure that our customers get the results they expect, we have developed a complete range of welding consumables from electrodes to welding wires.

# Welding Electrodes

## Our Products

- Fortrex E7018
- Zodian Universal E6013
- Matador 47 E6013
- Matador 48 E7018
- POL 113 E6013
- POL 113 SUPER E6013
- HEROWELD E6013
- POLHARD 650
- Stainless Steel
- Hardfacing
- Cast Iron



# Welding Electrodes

## Fortrex E7018™

Fortrex 7018™ is a basic-coated hydrogen controlled electrode designed for all-positional (except vertical-down) welding of carbon, alloy and strong tensile strength steels, and of mild steels under conditions of high restraint. It has high arc force, good penetration and easy slag detachability resulting in supreme quality welding joints even on rusty plates and uneven surfaces. It is especially suited for intermittent & continuous welding of steel sheets and small work pieces, cosmetic welding, car, truck, super structure of ships, tanks, piping work and welding restrained structures where high welding stress is involved. It has premium welding properties and deposits a high quality weld metal.

### Specification

#### Current range

Size (mm)	2.5 x 305	3.25 x 400	4.0 x 400	5.0 x 400
Current (amps)	75-90	90-130	120-180	160-220

#### Mechanical properties of deposited metal (AW)

Tensile strength (N/mm <sup>2</sup> )	Yield strength (N/mm <sup>2</sup> ) minimum	Elongation (%)	Charpy V impact values at -20°C minimum
510-640	410	22	162 (Joules)

#### Type of Current

AC, DCEP or DCEN

#### Type of covering

Basic-coated, Hydrogen controlled

#### Classification

AWS A/SFA 5.1-91 E7018;  
EN 499 E 42 3 B 32 H5;  
EN ISO 2560-A E 42 3 B 32 H5

#### Approvals

ABS, LR



## Zodian Universal™ E6013

Zodian Universal™ E6013 is a rutile-coated, general-purpose, mild steel/carbon steel, welding electrode. It has high arc force, good penetration and easy slag detachability resulting in quality welding joints even on rusty plates and uneven surfaces. It is suitable for all-positional welding and is particularly suited for downward, horizontal and vertical conditions. It is widely used in ordinary tensile strength mild steel structures and is especially suited for intermittent welding of steel sheets and small work pieces, cosmetic welding and piping work, steel frames, super structure of ships and all other types of fabrication – light, medium and heavy. It is also used by the construction and refining industry.

### Specification

#### Current range

Size (mm)	2.5 x 305	3.25 x 350	4.0 x 350	5.0 x 350
Current (amps)	70-90	90-120	130-190	180-230

#### Mechanical properties of deposited metal (AW)

Tensile strength (N/mm <sup>2</sup> )	Yield strength (N/mm <sup>2</sup> ) minimum	Elongation (%) minimum	Charpy V impact values at 0°C minimum
470-600	380	24	47 (Joules)

#### Type of Current

AC, DCEP or DCEN

#### Type of covering

Rutile-cellulosic electrode

#### Classification

AWS A/SFA 5.1-91 E6013;  
EN 499 E 38 0 RC 11;  
EN ISO 2560-A E 38 0 RC 11

#### Approvals

LR



# Welding Electrodes

## Matador47™ E6013

Matador47™ is the most popular mild steel welding rod able to provide excellent welding performance in all positional welding. It is widely used in ordinary tensile strength mild steel structures and is especially suited for intermittent welding of steel sheets and small work pieces as well as cosmetic welding.

### Specification

#### Current range

Size (mm)	2.5 x 300	3.2 x 350	4.0 x 400	5.0 x 400	
Current (amp)	F, H	60-90	80-130	150-190	180-250
	V, OH	50-80	80-110	130-170	

## Matador48™ E7018

Matador48™ is suitable for use in out-of-position welding except for welding at vertical down position having excellent strength and toughness. It is suitable for using in the field of steel constructions, boiler, container, machine manufacturing and shipbuilding as well as for use in welding low-purity and high carbon steels.

With formation of welding buffer layers when building up high-carbon steels, weld deposits have very low hydrogen content. There is a weld metal recovery of about 120%.

### Specification

#### Current range

Size (mm)	2.5 x 305	3.2 x 400	4.0 x 400	5.0 x 400
Current (amp)	75-90	90-130	120-180	160-220

#### Type of Current

AC, DCEP or DCEN

#### Type of covering

High titania, potassium

#### Classification

AWS A5.1 E6013 ; BS EN ISO 2560-B-E 43 13 A ; CSA W48-06 E4313 JIS Z3211 D4313; GB/T 5117 E4313

#### Approvals

LR, ABS



#### Type of Current

DCEP

#### Type of covering

Basic-coated  
Hydrogen controlled

#### Classification

BS 639 : 1986 : E5144B  
AWS A5. 1-91 E 7018  
EN ISO 2560-A : E42 3B 42 H15  
IDENTIFICATION : MT48 E 7018

#### Approvals

ABS, BV, CE, DB, DNV-GL,  
LR, RINA, RS, TL, TSE, SEPRO,  
VdTUB, NK, GOST-R, RCB



# Welding Electrodes

## POL 113™ E6013

POL 113™ E6013 is a mild steel welding rod able to provide excellent welding performance in 3 positional welding. It is widely used in ordinary tensile strength mild steel structures and is especially suited for intermittent welding of steel sheets and small work pieces such as gate-jali & other cosmetic welding.

### Specification

#### Current range

Size (mm)	2.5 x 300	3.2 x 350	4.0 x 400	5.0 x 400	
Current (amps)	F, H	60-90	90-130	140-190	190-250
	V, OH	50-80	80-120	120-170	150-200

\*Certification currently in process

\*\*Port Qasim, Lahore, Qasba Gujrat sites

#### Type of Current

AC, DCEP or DCEN

#### Classification

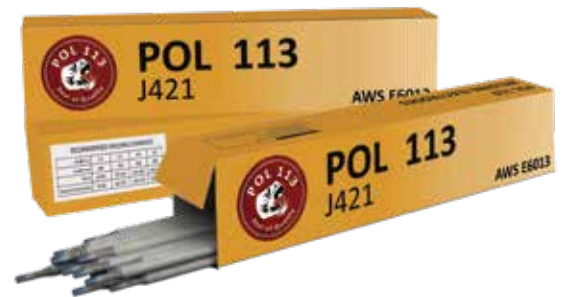
AWS A5.1 E6013

ISO E432 R11

DIN E432 R③

#### Approvals

BV,\* LR\*\*



## POL 113 SUPER™ E6013

POL 113 SUPER™ E6013 is a mild steel welding rod able to provide excellent welding performance in 3 positional welding. It is widely used in ordinary tensile strength mild steel structures and is especially suited for intermittent welding of steel sheets and small work pieces such as gate-jali & other cosmetic welding with lower smoke and less spatter.

### Specification

#### Current range

Size (mm)	2.5 x 300	3.2 x 350	4.0 x 400	5.0 x 400	
Current (amps)	F, H	60-90	90-130	140-190	190-240
	V, OH	50-80	80-120	120-170	150-200

\*Certification currently in process

\*\*Port Qasim, Lahore, Qasba Gujrat sites

#### Type of Current

AC, DCEP or DCEN

#### Classification

AWS A5.1 E6013

ISO E42 0 R 1 1

DIN E 43 22 R3

#### Approvals

BV,\* LR\*\*



# Welding Electrodes

## HEROWELD™ E6013

HEROWELD™ E6013 is a mild steel welding rod, able to provide excellent welding performance in 3 positional welding. It is widely used across the country for medium tensile strength steel structures and is especially suited for intermittent welding of steel sheets, small work pieces and cosmetic welding.

### Specification

#### Current range

Size (mm)	2.5 x 300	3.2 x 350	4.0 x 400	5.0 x 400
Current (amps)	60-90	80-130	150-190	180-250

\*Certification currently in process

\*\*Port Qasim, Lahore, Qasba Gujrat sites

#### Type of Current

AC, DCEP or DCEN

#### Classification

AWS A5.1 E6013

ISO E432 R11

DIN E432 R③

#### Approvals

BV,\* LR\*\*



## POLHARD 650™

POLHARD 650™ is an advanced harfacing electrode for your specific welding needs. Suitable for all positions welding with dense & splatter free deposit and rapid disposition.

### Specification

#### Current range

Size (mm)	3.25 x 400	4.0 x 400	5.0 x 400	
Current (amps)	1st pass	95-100	125-150	175-200
	2nd pass	85-95	90-115	140-165

\*Certification currently in process

\*\*Port Qasim, Lahore, Qasba Gujrat sites

#### Type of Current

First pass, second pass

#### Classification

Hardfacing 650





# Welding Electrodes

## Stainless Steel

E308, ER309 and ER316 electrodes are a good choice for welding stainless steel, especially for maintenance or repair applications. Stainless steel electrodes offer high cracking resistance and good strength. We distribute a wide range of stainless steel electrodes from our various global partners.

## Hardfacing

Hard facing electrodes are used to increase the service life of metal parts by restoring them to their original shape and size. A deposition of wear resistant surfaces on metal parts that have been worn down due to metal-to-metal friction, severe impact, severe abrasion or abrasion plus impact results in increased life of metal parts. Hardfacing electrodes can also be used for overlay to add a protective layer to carbon steel surface. We distribute a wide range of Hardfacing electrodes from our various global partners.

## Cast Iron

We have a variety of premium quality, good deposition of ferro-nickel alloy cast iron electrodes. Our Cast Iron rods have resistance to cracking & good machineability. We distribute a wide range of cast iron electrodes from our various global partners.



Welding wires are a part of our extensive portfolio of welding consumables. Our welding wires cover a comprehensive array of welding processes with a wide range of materials including Aluminum, stainless steel and steel alloys.

# Welding Wires

## Products

- Saffire MIG welding wire
- Saffire Flux Cored welding wire
- Saffire *lite* MIG welding wire
- Submerged Arc welding wire



## Saffire™ MIG welding wire

Saffire™ Mild Steel MIG wire ER 70S-6 is high quality copper coated metal inert gas (MIG) wire suitable for all positional welding of mild and low alloy steels used in general fabrication, sheet metal and automotive repair. The high quality copper coated ensures problem free feeding, smooth current pick-up and minimal contact tip wear.

### Recommended operating parameters

Wire size (mm)	Voltage range (Volts)	Current range (amps)
0.8	18-24	50-150
0.9	18-25	60-180
1.0	19-25	70-200
1.2	19-24 (short arc) 25-35 (long arc)	90-150 (short arc) 160-350 (long arc)

### Recommended operating parameters

0.8, 0.9, 1.0, 1.2 in 15kg precision layer wound plastic spool

## Specification

### Typical mechanical properties of deposited metal

Tensile strength (MPa)	Yield strength (MPa)	Elongation (%)	Charpy V-Notch (J)
>480	>400	>22	>27 (-29°C)

### Shielding gas

CO<sub>2</sub>, Argon, Ar/CO<sub>2</sub> mixture

### Flow rate

15-24 L/min

### Approvals

ABS, KR, CE, TUV



## Saffire™ Flux Cored welding wire

Saffire™ Mild Steel Flux Cored Wire E71T-1 is an all positional rutile micro-alloyed type wire formulated for 100% CO<sub>2</sub> or Argoshield as shielding gas. The wire exhibits smooth current pick-up & minimal contact tip wear. The smooth spray arc transfer results in excellent operator appeal. Versatile all positional capabilities including vertical up with precision layer wound spool design facilitate application in shipbuilding, barges, offshore platforms, heavy equipment, structural and general fabrication.

### Recommended operating parameters

Wire size (mm)	Welding position	Welding current range (Amps)	Arc voltage range (Volts)
1.2	Flat	250-300	29-35
	Flat Filled	230-280	28-30
	Vertical Up	170-220	24-28
1.6	Flat	300-350	28-34
	Flat Filled	230-350	24-34
	Vertical Up	200-250	26-28

### Recommended operating parameters

1.2, 1.6 mm in 15kg precision layer wound plastic spool

## Specification

### Typical mechanical properties of deposited metal

Tensile strength (MPa)	Yield strength (MPa)	Elongation (%)	Charpy V-Notch (J) @ -29°C
>580	>545	>28	58

### Shielding gas

CO<sub>2</sub>, Argon, Ar/CO<sub>2</sub> mixture

### Flow rate

19-24 L/min

### Approvals

ABS, KR, CE, TUV



## Saffire™ *lite* MIG welding wire

Saffire™ *lite* Mild Steel Mig Wire ER 70S-6 is high quality copper coated Metal Inert Gas (MIG) wire suitable for the all positional welding of mild and low alloy steels used in general fabrication, sheet metal and automotive repair. The high quality copper coated ensures problem free feeding, smooth current pick-up and minimal contact tip wear.

### Recommended operating parameters

Wire size (mm)	Voltage range (Volts)	Current range (amps)
0.8	18-24	50-150
0.9	18-25	60-180
1.0	19-254	70-200
1.2	19-24 (short arc) 25-35 (long arc)	90-150 (short arc) 160-350 (long arc)

### Recommended operating parameters

0.8, 0.9, 1.0, 1.2 in 15kg precision layer wound plastic spool

## Specification

### Typical mechanical properties of deposited metal

Tensile strength (MPa)	Yield strength (MPa)	Elongation (%)	Charpy V-Notch (J)
≥500	≥420	≥22	≥27

### Shielding gas

CO<sub>2</sub>, Argon, Ar/CO<sub>2</sub> mixture

### Flow rate

15-24 L/min

### Approvals

ABS, LR, CE, TUV



## Submerged Arc welding wire S2 Si

- Applicability in submerged arc welding of steel materials with medium or high levels of tensile strength
- Usability in manufacture processes of pressure vessels, boilers, pipes, ship and other steel construction purposes
- Decreased affinity to oxygen due to high content of silicon
- Increased electric conductivity, and increased resistance to corrosion due to copper coating

### Operating data

Wire size (mm)	Diameter (inch)	Weight (Kg)	Package Type
1.6	1/16	25	K 435 *Big Pack
2,0	5/64	25	
2.4	3/32	25	
3.2	1/8	25	
4.0	5/32	25	
5.0	3/16	25	

\* Packaging alternatives according to the order ; 30 - 350 - 550 - 1000 Kg

### Typical base material grades

- Structural steels : S355JR \* Pipe Steels : L360 \* Boiler Steels : P295GH, P 355 GH
- Ship-Construction Steels : A, B, D, E

## Specification

### Mechanical properties

Sumerged Arc Flux	AWS A5.17	Tensile strength (N/mm <sup>2</sup> )	Yield strength N/mm <sup>2</sup>
ELIFLUX BFB	F7A2-EM12K/ F7P2-EM12k	530	430

Elongation (Lo=5do)(%)	Impact Strength ISO-V(J)			
	0°C	-20°C	-30°C	-40°C
28	—	80	70	—

### Standards

TS EN ISO 14171-A : S 2 Si  
 EN ISO 14171-A : S 2 Si  
 AWS A5.17 : EM 12 K

### Approvals

S2 Si x ELIFLUX BFB : ABS, LR, BV, CE, DB



Pakistan Oxygen is a global partner and a distributor of welding equipment from multiple international manufacturers. We provide solutions for all kinds of welding needs such as Metal Inert Gas (MIG), Metal Active Gas (MAG), Tungsten Inert Gas (TIG), Manual Metal Arc (MMA) and plasma welding/cutting

# Welding Machines

## Products

### RILAND

- ARC 200CT
- MMA 400G
- MIG 251GF
- MIG 500GF
- TIG 200CT
- TIG 300A
- TIG 315PAC/DC

### ESAB

- RENEGADE ES 300i
- CADDY ARC 201i
- WARRIOR 400i/500i
- ORIGO Mig 410/510
- BUDDY ARC 400i
- BUDDY ARC 200



## ARC 200CT

A professional choice for any light to medium fabrication using suitable rutile, basic or cellulosic electrode. This equipment is made user friendly and is equipped with air ducts for non stop welding. An economical machine that is reliable under tough conditions and can deliver results that you need.

### Processes

- MMA
- Lift-TIG optional

### Package Includes

- Inverter power source
- Electrode holder with cable (3m)
- Earth clamp with cable (3m)

### Top Features

- New technology for maximizing thermal dissipation with 4 separate heat sinks
- Built-in voltage regulation device (VRD) to ensure welder's safety
- Self-adaptive Arc force and Hot start built-in, Anti-sticking
- Continuous welding for 2.5mm(12) and 3.2mm(10) electrode, able to weld with 4.0mm(8) electrode
- Suitable for rutile electrode, basic electrode and cellulosic electrode
- LED display, low power consumption and ultra light weight



### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
ARC 200CT	220V/7.7KVA/ 1P/50-60Hz	170A/26.8V/30% 120A/24.8V/100%	35A@170A	30-170A/70V/18V(VRD)	402*160*300	5.8	IP21S	H

## MMA 400G

A powerful, compact and excellent choice for medium to heavy fabrication using all types of electrodes including low hydrogen. It is an economical equipment for industries that need reliability and efficiency. The remote control option gives this machine an edge as it can also be operated remotely.

### Processes

- MMA
- Arc Gauge
- Remote control option available

### Package Includes

- Inverter power source
- Electrode holder
- Earth clamp

### Top Features

- Adjustable VRD (voltage regulation device) to ensure welder's safety
- Adjustable Arc Force and hot start option to make it compatible with low hydrogen
- Suitable for acid electrode, basic electrode and cellulosic electrode, excellent performance on gouging and with 5.0 mm electrode
- Tri-proof air duct design



### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
MMA 400G	380V/18.2KVA/ 3P/50-60Hz	380A/35.2V/40% 253A/30.1V/100%	27.7A@380A	40-380A/62V/17V (VRD)	485*234*425	22	IP21	H

## MIG 251GF

MIG 251 GF is a powerful, reliable and compact equipment for any light to medium welding using MIG or Flux cored wire. It is light weight and easily movable. Built in IGBT inverter technology this machine is an economical choice for the industry, maintaining its reliability for MIG and MMA applications.

### Processes

- MIG
- MMA

### Package Includes

- Inverter power source
- MIG torch
- Earth clamp
- Hose
- Hose clamp



### Top Features

- Adjustable current, voltage and inductance
- 2T/4T function
- Compatible with 15kg (300mm) wire spool
- Tri-proof air duct design
- Advanced IGBT inverter facility
- Thermal protection

### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
MIG 251GF	220V/7.92KVA/ 1P/50-60Hz	MIG: 200A/24V/40% 130A/20.5V/100% MMA: 160A/26.4V/40% 105A/24.2V/100%	MIG: 36A@200A MMA: 32A@160A	MIG: 50-200A/56V MMA:40-160A/56V	468*245*478	15.4	IP21	F

## MIG 500GF

A professional choice for medium to heavy fabrication works using MIG or Flux cored wire. It is made user friendly and is equipped with thermal protection. Built on IGBT inverter technology this machine is your only economical choice for the industry, maintaining its reliability for MIG and MMA applications.

### Processes

- MIG
- MIG/Gasless
- MMA

### Package Includes

- Inverter power source
- MIG torch
- Earth clamp
- Hose
- Hose clamp



### Top Features

- Adjustable current, voltage and inductance for arc stability and control
- Type and diameter of the wire can be selected to facilitate ideal parameter setting
- Arc extinction regulator can be selected
- Tri-proof air duct design
- Advanced IGBT module inverter, improved reliability
- 2T/4T function, stepless welding current & voltage setting
- Excellent for solid cored / Flux cored wire including MMA welding
- Applicable material: Carbon steel, low alloy steel, stainless steel & other ferrous metal materials

### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
MIG 500GF	380V/20.51KVA/ 3P/50-60Hz	MIG: 450A/36.5V/40% 355A/31.7V/100% MMA: 450A/38V/40% 355A/34.2V/100%	MIG: 31.2A@450A MMA: 31.8A@450A	MIG: 60-450A/61V MMA: 60-450A/61V	515*262*468	30	IP21	F



## TIG 200 CT

TIG 200 CT is a powerful, reliable and compact equipment for welding stainless steel. It is light weight and easily movable.

### Processes

- DC TIG
- MMA

### Package Includes

- Inverter power source
- TIG torch (4m)
- Earth clamp (3m)
- Tungsten electrode



### Top Features

- New technology to maximize thermal dissipation with 4 separated heat sinks
- Adjustable Post-gas flow
- The success rate of arc striking is more than 99%

### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
TIG 200 CT	220V/1P/50-60Hz	TIG : 180A/17.2V/30% 150A/16V/100% MMA: 155A / 26.2V / 40% 130A / 25.2V / 100%	TIG : 26A @ 180A MMA: 31.2A @ 155A	TIG 10-180A/58V/16.5V (VRD) MMA 10-155A/58V/16.5V (VRD)	402*160*300	6.5	IP21	F

## TIG 300A

TIG 200 CT is a powerful, reliable and compact equipment for welding stainless steel. It is light weight and easily movable.

### Processes

- DC TIG
- MMA

### Package Includes

- Inverter power source
- TIG torch (4m)
- Earth clamp (3m)
- Tungsten electrode



### Top Features

- New technology to maximize thermal dissipation with 4 separate heat sinks
- 2T/4T
- Post-flow adjustable
- Up-slope and down adjustable
- Arc force adjustable
- The success rate of arc striking is more than 99%

### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
TIG 300A	380V/3P/50-60Hz	TIG : 300A/22V/30% 200A/18V/100% MMA: 250A / 30V / 30% 160A / 26.4V / 100%	TIG : 17A @ 300A MMA: 17A @ 250A	TIG 15-300A/68V MMA 15-250A/68V	472*203*357	12	IP21	F

## TIG 315PAC/DC

TIG 200 CT is a powerful, reliable and compact equipment for welding stainless steel. It is light weight and easily movable.

### Processes

- DC TIG
- MMA

### Package Includes

- Inverter power source
- TIG torch (4m)
- Earth clamp (3m)
- Tungsten electrode



### Top Features

- The mature MOSFET inverter technology.
- Multi-function, TIG and MMA.
- Current and gas post time adjustable, enrich controlling ways of welding shape.
- 2T/4T function, abundant modes to service various welding demands.
- Arc striking current/ peak current/ base current adjustable, all for welding with better performance.
- Current upslope time/ current down slope time adjustable, the reliable protection for welding shape.
- Pulse frequency adjustable, different pulse frequency lead to different welding shape to meet demands.
- Pulse duty ratio/ pulse width clean/ post gas adjustable, abundant ways to control welding process. Intelligent protection: over-heating, over-current, over-voltage protection, convoy for the welder to keep power.

### Specifications

Model	Input Power	Output Current/Voltage/Duty Cycle (40°C)	Amps Input at Rated Output	Output Range/OCV	Dimension (mm)	Weight (kg)	IP Class	Insulation class
TIG 315PAC /DC	380V/3P/50-60Hz	TIG : 300A/22V/30% 200A/18V/100% MMA: 250A / 30V / 30% 160A / 26.4V / 100%	TIG : 17A @ 300A MMA: 17A @ 250A	TIG 15-300A/68V MMA 15-250A/68V	472*203*357	12	IP21	F

## RENEGADE ES 300i

### Processes

- MMA
- TIG

### Top Features

- Extreme power to weight ratio in a most compact formats
- Rugged composite casing for durability in the roughest environments
- For professional MMA welding with electrodes up to 6mm with a high duty cycle of 300 A at 40%. Ideal for operation in high ambient temperatures
- The machine automatically provides operators with the optimal start and stop parameters based on the set welding current
- A booster circuit provides additional voltage for superior cellulosic arc starts and welding performance
- 3 memory settings for easy and quick access to welding parameters



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	Output Range	L*W*H mm	Weight ( kg )	IP Class
RENEGADE ES 300i	230-480VAC (+/-10%)/3P /50Hz-60Hz	MMA: 300A/32.0V/40% 250A/30.0V/60% 200A/28.0V/100%  TIG: 300A/22.0V/40% 250A/20.0V/60% 200A/18.0V/100%	5 – 300 A	460 x 200 x 320	15	IP 23

## RENEGADE ET 300i

### Processes

- MMA
- TIG

### Top Features

- Extreme power to weight ratio in a most compact formats
- Rugged composite casing for durability in the roughest environments
- For professional MMA welding with electrodes up to 6mm with a high duty cycle of 300 A at 40%. Ideal for operation in high ambient temperatures
- The machine automatically provides operators with the optimal start and stop parameters based on the set welding current
- A booster circuit provides additional voltage for superior cellulosic arc starts and welding performance
- 3 memory settings for easy and quick access to welding parameters



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	Output Range	L*W*H mm	Weight ( kg )	IP Class
RENEGADE ET 300i	230-480VAC (+/-10%)/3P /50Hz-60Hz	MMA: 300A/32.0V/40% 250A/30.0V/60% 200A/28.0V/100%  TIG: 300A/22.0V/40% 250A/20.0V/60% 200A/18.0V/100%	5 – 300 A	460 x 200 x 320	16.9	IP 23

## Rogue ES 200i PRO

### Processes

- MMA
- TIG

### Top Features

- Rogue breaks all the rules, giving entry-level welders premium accessories and everything you need to start welding, right out of the box.
- Its robust and rigid fiberglass-molded housing is built to withstand impact after impact, in the shop or in the field.
- Rogue's compact and lightweight design makes it easy to carry from job to job
- More Control Over the Way You Weld



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	L*W*H mm	Weight ( kg )	IP Class
Rogue ET 200iP PRO	230 ±15% VAC 1, 50/60 Hz	MMA: 200 A / 28.0 V @ 25 % 129 A / 25.2 V @ 60 % 100 A / 24.0 V @ 100 %  TIG: 200 A / 18.0 V @ 25 % 129 A / 15.2 V @ 60 % 100 A / 14.0 V @ 100 %	403 x 153 x 264 mm	8.4	IP23S

## Rogue ET 200iP PRO

### Processes

- MMA
- TIG

### Top Features

- Rogue breaks all the rules, giving entry-level welders premium accessories and everything you need to start welding, right out of the box.
- Its robust and rigid fiberglass-molded housing is built to withstand impact after impact, in the shop or in the field.
- Rogue's compact and lightweight design makes it easy to carry from job to job
- More Control Over the Way You Weld



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	L*W*H mm	Weight ( kg )	IP Class
Rogue ET 200iP PRO	115/230 ± 15% VAC 1, 50/60 Hz	MMA: 200 A / 28.0 V @ 25 % 129 A / 25.2 V @ 60 % 100 A / 24.0 V @ 100 %  TIG: 200 A / 18.0 V @ 25 % 129 A / 15.2 V @ 60 % 100 A / 14.0 V @ 100 %	403 x 153 x 264 mm	8.2	IP23S

## CADDY ARC 201i

### Processes

- MMA
- TIG

### Top Features

- Adjustable hot start easy to strike the electrode. Helps you to avoid starting problems
- Adjustable arc force sets the intensity of the arc for improved weld quality
- Better welding characteristics, simplifies your work and gives you better weld quality with less after treatment
- Extra long mains cable capability gives extra large working radius



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	L*W*H mm	Weight ( kg )	IP Class
CADDY ARC 201i	230V/1P/50Hz-60Hz	MMA: 170A/26.8V/25% 130A/25.2V/60% 110A/24.4V/100%  TIG: 220A/18.8V/25% 150A/16.0V/60% 110A/14.4V/100%	418 x 188 x 208	8.3	IP23

## Origin Arc 455

### Top Features

- It allows the welding of carbon steel and alloyed steel, stainless steel, cast iron, aluminum and its alloys, copper and bronze.
- High open circuit voltage ensures easy arc striking and excellent stability of the electric arc.
- The welding current adjustment is done by a crank located on the front panel, which allows to precisely select the parameter according to the application.
- Three phase electrical supply at 220, 380 or 440 volts at 60 Hz or 380 volts at 50 Hz.
- Powerfull cooling fan guarantees exceptional equipment performance against excess temperature of the internal components.
- Compact and robust cabinet, built in galvanized sheets and painted by an electrostatic antioxidant process.
- Welding cables to be connected by an OKC terminal to improve the safety of the welding area.



### Specifications

Model	Input Power	Authorized Cargo Current/ Duty cycle	L*W*H mm	Weight ( kg )	IP Class
Origin ARC 455	380 V 3, 50 Hz  220/380/440 V 3, 60 Hz	400 A / 36 V @ 35 % Duty Cycle 300 A / 32 V @ 60 % Duty Cycle 230 A / 30 V @ 100 % Duty Cycle  450 A / 38 V @ 30 % Duty Cycle 300 A / 32 V @ 60 % Duty Cycle 230 A / 29 V @ 100 % Duty Cycle	439 x 600 x 570 mm	142	IP21

## WARRIOR™ 400i/500i

### Processes

- MIG
- TIG
- FCAW
- MMA
- Arc Gouging

### Top Features

- Multi-Process including MIG, Flux-Cored, Stick, Live TIG and Arc Gouging gives you the flexibility at work:-Flux-Cored and Solid wire, 0.8 -1.6 mm.Carbon Arc Gouging up to 9.5 mm (3/8 in.). -6010 (cellulosic) capability
- High Duty cycle –For long runs and various applications giving high productivity
- Durable and rugged –IP23 rating for outdoor and indoor use in rough environment
- Easy to use –Simple and clear user interface for everyone to get started quickly
- Robust and ergonomic handles –Also for mechanical lifting
- Sun friendly display–easy to read outdoor
- Inverter technology –Smaller, lighter and less energy cost, gives you value for money
- Generator compatible –For flexible use in different job sites
- Automatic Hot Start/Variable Arc Control –To support your different demands
- Wide input voltage range to support regional requirements



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle	Output Range	L*W*H mm	Weight ( kg )	IP Class
WARRIOR 400i	380-460, +/-10%	300A@100% 400A@60% 3ph	5 - 400V 220 - 460V	712x325x470	52	IP 23
WARRIOR 500i	380-575, +/-10% 380-460, +/-10%	400A@100% 500A@60% 3ph	500V 380/460/575 V	712x325x470	52	IP 23

## ORIGO™ Mig 410/510

### Top Features

- Outstanding welding characteristics- high efficiency and quality welding
- Standard digital V/A meter kit – makes parameters visible and helps to improve weld quality
- Sturdy galvanised metal casing with air filter as option- made to withstand tough corrosive and adverse environments
- Wide current and voltage range- no compromise, multi-purpose applications
- ELP, ESAB LogicPump- automatically starts water pump when a water-cooled gun is connected
- Idle mode- power and noise efficient, cooling fan and pump work only when needed



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle	Output Range	L*W*H mm	Weight ( kg )	IP Class
ORIGO Mig 410	400-415 3~50 230/400-415/500 3~50 230/440-460 3~60	400@50% 365@60% 280@100%	280 - 500 V	812 x 552 x 925	144	IP23
ORIGO Mig 510	400-415 3~50	500@60% 390@100%	280 - 500 V	812 x 552 x 925	214	IP23

## BUDDY™ ARC 400I

### Processes

- MMA
- TIG

### Top Features

- Inverter controlled – more efficient power usage
- Light weight – improved mobility
- Easy-to-use control panel – quick setup
- Adjustable hot start – easy to strike the electrode. Helps you to avoid starting problems
- Adjustable arc force – sets the intensity of the arc for improved weld quality
- Wide mains voltage tolerance – stable welding controls



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	Output Range	L*W*H mm	Weight ( kg )	IP Class
RENEGADE ES 300I	400V/3P/50Hz	MMA: 400A/36V/60% 310A/32.4V/100%  TIG: 400A/26V/60% 310A/22.4V/100%	20 - 400 A	540 x 280 x 510	29	IP 21

## BUDDY™ ARC 200

### Processes

- MMA
- TIG

### Top Features

- Superior arc characteristics – Smooth welding conditions
- Generator compliant – Suitable for use with generators
- Easy to use – Set the welding current and weld with excellent result
- Practical design - makes the power source easy to carry which enables use at almost any work site
- Robust design - withstands harsh environments



### Specifications

Model	Input Power	Rated Output Current/ Duty cycle MMA/TIG	L*W*H mm	Weight ( kg )	IP Class
RENEGADE ES 300I	230V/1P/50Hz-60Hz	MMA: 200A/28V/35% 135A/25.4V/60% 120A/24.8V/100%  TIG: 200A/18V/35% 135A/15.4V/60% 120A/14.8V/100%	360 x 140 x 230	7	IP 23S

# Abrasives

## Products

- POLCUT cutting discs
- POLGRIND grinding discs
- WEILER cutting & grinding disc

Our cutting discs have superior durability, ultrahigh cutting speed, excellent sharpness and high break resistance. They are available in super thin and regular sizes to cut Stainless Steel, Cast iron, Aluminum and Mild Steel. Without friction and hot steel corrosion, POLCUT can cut thin walled materials, solid pipes, various plates, and large pipes.

Our grinding discs are durable and support high speed cutting with excellent abrasive performance. They are exceptionally resistant to breaking with excellent de-burring and rust removal capacity for Cast Iron and Steel. POLGRIND can grind metals especially profile plates, rebar and high tensile steel structures. It can also be used for weld grinding, chamfer, and to repair sealing weld for safer application.





## POLGRIND®

Pakistan Oxygen Limited is a leading supplier of gases, welding equipment, and safety products. The POL GRIND grinding discs are a range of depressed-centre discs for use on portable machines. These discs are designed to deliver perfect abrasive performance and extra durability across a wide range of metal applications such as steel, stainless steel, cast iron and mild steel.

POL GRIND® discs are developed, manufactured and safety-tested in accordance with the European Standard EN 12413, ISO 9001 to consistently deliver a 38% faster grinding rate\*.

4"	5"	9"	9"
4" x 1/4" x 5/8"	5" x 1/4" x 7/8"	9" x 1/4" x 7/8"	9" x 1/4" x 7/8"

### Product Advantages

- Extra durability
- High-speed grinding
- High break-resistance
- Comfortable grinding experience
- Minimizes operator fatigue
- No burring sound
- Decreases grinder/ machine maintenance

### Usage Instructions



### Working Materials



## POLCUT®

Pakistan Oxygen Limited is a leading supplier of gases, welding equipment, and safety products. The POL CUT cutting discs are a wide range of flat and depressed-centre discs for use on portable machines. These discs are designed for extra durability across a wide range of cutting applications such as of metals, alloy steel, stainless steel, carbon steel, hard bronze, and Inox.

POL CUT® discs are developed, manufactured and safety-tested in accordance with the European Standard EN 12413, ISO 9001 to consistently deliver supreme cutting performance\*.

### Flat Discs

Flat Disc 4" x 1.2mm	
Flat Disc 5" x 1.2mm	Flat Disc 5" x 3mm
Flat Disc 7" x 1.6mm	Flat Disc 7" x 3mm
Flat Disc 9" x 2mm	Flat Disc 9" x 3mm
Flat Disc 12" x 3mm	
Flat Disc 14" x 3mm	

### Depressed Discs

Depressed Disc 5" x 1.2mm	Depressed Disc 5" x 3mm
Depressed Disc 7" x 1.6mm	Depressed Disc 7" x 3mm
Depressed Disc 9" x 2mm	Depressed Disc 9" x 3mm

### Product Advantages

- High-speed cutting
- Bending resistance
- Comfortable cutting experience
- Minimizes operator fatigue
- Shock resistance
- Decreases machine maintenance

### Usage Instructions



### Working Materials



## WEILER

Weiler Abrasives is an industry leader and global manufacturer of surface conditioning solutions. The Metalynx PRO line offers a wide range of flat and depressed-centered cutting wheels for all your general-purpose applications. The wheels are designed to enable ultimate performance on portable- as well as stationary machines.

### Cutting Discs

4" x 3mm Depressed Disc	4" x 3mm Flat Disc
5" x 3mm Depressed Disc	5" x 3mm Flat Disc
7" x 1.6mm Depressed Disc	7" x 1.6mm Flat Disc
7" x 3mm Depressed Disc	12" x 3mm Flat Disc
9" x 3mm Depressed Disc	14" x 3mm Flat Disc

### Grinding Discs

4" x 6mm x 16mm Depressed Disc
5" x 6mm x 22mm Depressed Disc
7" x 6mm x 22mm Depressed Disc
9" x 6mm x 22mm Depressed Disc

### PRODUCT ADVANTAGES

- Superior/outstanding performance
- High cut-rate
- Effortless cutting experience
- Reduced kickback minimizes operator fatigue
- Self-sharpening
- Long product life



### Safety Instructions



Use a safety or protective eyewear



Use ear protection



Use protective gloves



Use a dust mask



Please read the instructions carefully



Free hand grinding or cutting prohibited



Use of damaged products prohibited

Pakistan Oxygen believes in providing quality equipment yielding desirable results for all the welding needs of a business. Our gas and arc equipment have applications in uses in industrial and general fabrication, light fabrication, repair and maintenance, structural steel fabrication, civil construction, general manufacturing and chemicals industry. As a leading supplier of industrial gases and gas mixtures, we are ideally positioned to understand your safety and performance needs. Building on our in-depth knowledge and hands-on experience, we have engineered a vast range of equipment to the highest standards, so you can rely on optimum quality, performance, safety and reliability. Our industry-leading after sales support gives an added peace of mind.

# Refrigerants

## Products

- Felix R134a
- Felix R22
- Felix R410A



## Felix R134a

R134a refrigerant is mainly used as a refrigerant in automobile air-conditioning, household, and commercial refrigerant applications.

Smell	Purity %	Appearance
Odorless	99.9%	Colorless, Transparent



## Felix R410A

R410A refrigerant is used in new residential and commercial air conditioning systems, heat pumps, dehumidifiers, and small chillers. It is also being considered in some medium temperature refrigeration applications.

Smell	Purity %	Appearance
Odorless	99.9%	Colorless, Transparent



## Felix R22

R22, a colorless gas at room temperature, is a colorless, non – toxic, non-flammable, and transparent liquid under the pressure created by itself. It has excellent thermal and chemical stabilities and no corrosivity to metals.

Smell	Purity %	Appearance
Odorless	99.9%	Colorless, Transparent



Pakistan Oxygen believes in providing quality equipment yielding desirable results for all the welding needs of a business. Our gas and arc equipment have applications in industrial and general fabrication, light fabrication, repair and maintenance, structural steel fabrication, civil construction, general manufacturing and chemicals industry. As a leading supplier of industrial gases and gas mixtures, we are ideally positioned to understand your safety and performance needs. Building on our in-depth knowledge and hands-on experience, we have engineered a vast range of equipment to the highest standards, so you can rely on optimum quality, performance, safety and reliability. Our industry-leading after sales support gives an added peace of mind.

# Gas & Arc Equipment

## Products


- Gas regulators (single & multi-stage)
- Cutting & welding torches
- Welding and cutting outfit
- Electrode holders
- Auto-darkening helmet
- Flashback arrestor
- Welding cables



## Saffire™ single stage regulators

We have three single stage regulators under 'Saffire' brand to be used with our different welding gases built on international standards with ISO 2503 and ISO 1571 certifications.

### Oxygen regulator


Regulator Type	Single Stage	Inlet stem length	63 (50 mm visible)	Gauge Diameter	50 mm
Gas	Oxygen	Outlet connection	G3/8 RH	Gauge Depth	28 mm
Regulator Standard	ISO 2503	Diameter	56.5 mm	Artwork	Saffire Branded 
Max. Inlet	230 bar	Finish	Brass body		
Outlet	10 bar	Gauges	'HP' & 'LP' Gauges		
Inlet position	6 °clock	Gauge Standard	ISO 5171		

Body marking	High pressure and low pressure ports marked 'HP' and 'LP'
Date of Manufacture Marking	To be permanently marked (engraved) and visible externally
Inlet Connection	BS 341 No. 3 Bullnose, Soft Seat (G5/8 Nut)
Flow (Standard Discharge)	Class 3 (as per ISO2503), 30 m <sup>3</sup> /h
Ports	G <sup>3/4</sup> (to EN 837)
Gauge range & Units	Bar and Psi



Regulator Standard	Materials & Finish	Performance & Testing
115/230/1/50/60	Body: CW614N Brass Control Knob: ABS Valve seat: Elastomer Diaphragm: Elastomer	Springs: Steel Other seals: Elastomer Inlet Filter: Bronze  100% Leak check 100% Pressure test 100% Function test 100% Visual inspection

### Dissolved Acetylene Regulator

Regulator Type	Single Stage	Inlet stem length	63 (50 mm visible)	Gauge Diameter	50 mm
Gas	Acetylene	Outlet connection	G3/8 RH	Gauge Depth	28 mm
Regulator Standard	ISO 2503	Diameter	56.5 mm	Artwork	Saffire Branded 
Max. Inlet	25 bar	Finish	Brass body		
Outlet	1.5 bar	Gauges	'HP' & 'LP' Gauges		
Inlet position	6 °clock	Gauge Standard	ISO 5171		

Body marking	High pressure and low pressure ports marked 'HP' and 'LP'
Date of Manufacture Marking	To be permanently marked (engraved) and visible externally
Inlet Connection	BS 341 No. 2 Bullnose, Soft Seat (G5/8 LH Nut)

	Class 2 (as per ISO2503), 5 m <sup>3</sup> /h
Ports	G <sup>3/4</sup> (to EN 837)
Gauge range & Units	Bar and Psi



Regulator Standard	Materials & Finish	Performance & Testing
BS EN ISO 2503	Body: CW614N Brass Control Knob: ABS Valve seat: Elastomer Diaphragm: Elastomer	Springs: Steel Other seals: Elastomer Inlet Filter: Bronze  100% Leak check 100% Pressure test 100% Function test 100% Visual inspection

## Argon regulator

Regulator Type	Single Stage	Inlet stem length	63 (50 mm visible)	Gauge Diameter	50 mm
Gas	Argon	Outlet connection	G3/8 RH MTG	Gauge Depth	28 mm
Regulator Standard	ISO 2503	Diameter	56.5 mm	Artwork	Saffire Branded
Max. Inlet	230 bar	Finish	Brass body		
Outlet	45 LPM	Gauges	'HP' & 'LP' Gauges		
Inlet position	6 o'clock	Gauge Standard	ISO 5171		



Body marking	High pressure and low pressure ports marked 'HP' and 'LP'
Date of Manufacture Marking	To be permanently marked (engraved) and visible externally
Inlet Connection	BS 341 No. 3 Bullnose, Soft Seat (G5/8 Nut)
Flow (Standard Discharge)	Class 10 (as per ISO2503), 45 LPM
Ports	G <sup>3/4</sup> (to EN 837)
Gauge range & Units	Bar and Psi

Regulator Standard	Materials & Finish	Performance & Testing
BS EN ISO 2503	Body: CW614N Brass Control Knob: ABS Valve seat: Elastomer Diaphragm: Elastomer	Springs: Steel Other seals: Elastomer Inlet Filter: Bronze
		100% Leak check 100% Pressure test 100% Function test 100% Visual inspection

## Multistage Cylinder Regulators

Multi-stage regulators are designed to provide accurate, fluctuation free delivery for precision applications such as machine cutting or laboratory use. The first stage reduces the inlet pressure by over 90% and the large second stage diaphragm ensures accurate delivery pressure.

POL's multistage regulators are precision built to latest EN ISO 2503 and EN ISO 7291 standards to provide maximum accuracy and safety. These regulators have the additional feature of being able to pipe away gases from the relief valve port and comply with the stringent requirements of EN ISO 7291 even for strict manifold application. Regulator of Oxygen, DA and CO<sub>2</sub> are similar in design.



Body	Forged Brass, chemically stabilized and gold powder-painted
First stage Bonnet	Forged Brass, chemically stabilized and powder painted
Second stage Bonnet	Die-cast Zinc alloy, chemically stabilized and powder painted
First stage Diaphragm	Diam. 40 mm, pre-shaped stainless steel
Second stage Diaphragm	Diam. 82 mm, EPDM fabric-reinforced rubber
Heart Valves	Brass body sealed by PA (first stage) or high-grade chloroprene rubber (second stage)
Pressure Gauges	Safe design, bulkhead 50mm gauges, dual scales, accuracy class 2,5 %
Inlet Stem & Nut	High-tensile brass, geometry complying to BS-341 standard
Safety Valves	On both regulators stages, non-adjustable
Control elements	Plastic handwheel + captive pressure limitation pf P2 max
Setting	Ergonomic PA handwheel, adjustable limitation pf P2 max

Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (Form)	Outlet (Form)	Flow m <sup>3</sup> /h
Oxygen	2	300	10	G 5/8"	G G 3/8"	48
Acetylene	2	25	1,5	G 5/8 LH	G 3/8 LH	10
Hydrogen	2	300	10	G 5/8 H	G 3/8 LH	191
Nitrous oxide	2	200	10	BS13	G 3/8"	35
Inert N <sub>2</sub> / Ar	2	300	10	G 5/8"	G 3/8"	48



## Oxygen and Dissolved Acetylene gas regulator

### Industries

- Industrial and general fabrication
- Light fabrication
- Repair & maintenance
- Structural steel fabrication
- Civil construction
- General manufacturing

### Features

- Compact design, great for small cylinders and right spaces with no reduction in quality
- High contrast gauge face high strength alloy bonnet
- Color coded knobs
- Single stage
- Forged brass body & Zinc Aluminum housing cap
- 2" (50.8 mm) gauges
- 9/16 -18" outlet connection
- Internal relief



Cylinder Gas	Maximum Delivery Pressure	Diameter	Weight
Oxygen Dissolved Acetylene	150 psig 15 psig	2in	3lb (1.36kg)

## Argon and Argon/CO2 gas regulator

### Industries

- Industrial and general fabrication
- Light fabrication
- Repair & maintenance
- Structural steel fabrication
- Civil construction
- General manufacturing

### Features

- Dual 2" gauges
- Zinc-Aluminum bonnet
- Single stage design
- Ergonomic adjusting knob
- Color scale graphics with MIG and TIG ranges
- 5/8" -18 RH{F} outlet connection



Cylinder Gas	Maximum Delivery Pressure	Diameter	CFH	Weight
Argon CO2 Mix Carbon Dioxide	3000 psig 3000 psig	Dual pin	50 38	2.10lb (1.22kg)

## Cutting & welding torches

We are a distributor of heavy duty, high capacity welding and cutting torches from Victor range of ESAB. The improved quality from our experienced source makes this cutting torch useful for a variety of welding needs.

### ESAB Victor ST400 C

#### Heavy Duty Cutting Torch



For use with all fuel gases with appropriate tip

#### Special designed alloy material

- 3x the tensile strength of brass
- Ergonomic, textured, precision contoured handle is designed to reduce operator fatigue and provide better grip
- Durable to withstand tough use and prevention of dents and scratches.

#### Intuitive knobs

- Color coded
- Clearly marked lettering with increase/decrease label
- Understandable in any language



#### Features

- For use with all fuel gases, 5 psig and above
- Cutting capacity up to 6" (300.0 mm)
- Hose connections are 9/16"-18 unless noted
- Built-in reverse flow check valves no need for accessory check valves

Lever Position	Tip series	Head angle	Length
Top rear	1	90°	21 " (53.3 cm)

## Welding and cutting outfit

### Medalist 250 System



#### Features

- Medium duty construction
- G250 series regulators
- WH411C torch handle with built-in check valves
- CA411-3 cutting attachment
- Welding nozzle
- Cutting tip
- RM-grade hose 20' x 3/16" (6.1 M x 4.8 mm)
- Striker and soft-sided goggles
- Build-in check valves

A medium duty system cuts up to 1/2" (12.7 mm) or 5" (127.0 mm) with optional tips. It welds upto 5/64" (2.0 mm) or 1.25" (31.8 mm) with optional nozzles.



## Electrode holders

An electrode holder is a clamping device used for mechanically holding the welding electrode securely in any position. Our electrode holders are made from high quality copper alloys with reversible top and bottom insulators. They are user friendly and fit easily in the palm to help decrease operator fatigue. Other features include a reversible top coupled with one-piece handle covers up to the jaw, eliminating the need to body insulator resulting in fewer parts to the inventory



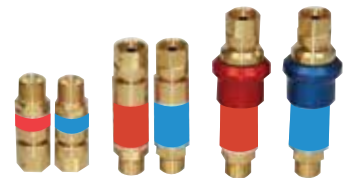
## Auto-darkening helmet

Our safety auto-darkening helmets are designed to reduce the fume in the driver's breathing zone and the helmet is designed to give the user maximum adjustment and comfort. The lens of the helmet provides immediate protection by switching from light to dark, in just a matter of seconds. The helmet is a perfect option for both professional welders and welders who weld infrequently with its light-weight.



## Flashback arrestor

Our flashback arrestors are a safety device in oxy-fuel welding and cutting to stop the flame and reverse flow of gas back into the equipment or supply line. It prevents both the user and equipment from damage or explosions.



## Welding cables

Our welding cables are robust, flexible and reliable, manufactured for safety and longevity. These cables are highly conductive and double insulated that makes them weather and abrasive resistant.









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