

# CUTTING AND WELDING GAS CONTROL EQUIPMENT



# GCE GROUP OVERVIEW

The GCE Group has an extensive product range to serve customers within Industrial, Medical, High Purity and Special gas applications.

The GCE Group offers local sales and supply companies in the following locations: Austria, Benelux, Czech Republic, France, Germany, Hungary, Italy, Poland, Portugal, Romania, Spain, Sweden, Switzerland, United Kingdom, China and Russia. In addition GCE has recently opened new sales offices in India, Middle East (Dubai), Panama and Mexico and has its main production facilities based in the Czech Republic and China. GCE has a central distribution centre based in Kladno, just north of Prague.

## GLOBAL BRAND RECOGNITION

GCE is associated with leading trademarks and brands such as DruVa, Mediline, Mujelli, Propaline, Kayser, Krass, Butbro, Charledave, Propaline, Rhöna, Sabre medical, Murex, AGA, BOC, Linde and ESAB. Our quality management system is certified to ISO 9001 and our products are tested and approved by BAM, BSI, Norske Veritas, US Dot, UL, CEN, DIN and SIS.

All GCE medical production facilities have EN approvals for CE marking and an increasing number of GCE facilities has systems that have been granted approval to the environmental standard ISO 14000.

## MARKET LEADERS

The GCE Group is today an Europe's leading company in the field of gas control and involved in the development and manufacturing of all types of equipment for pressure and flow control of high pressure gases. GCE's main business was originally concentrated in the oxy-acetylene cutting and welding market. However, with almost 100 years of experience in the handling of high pressure gases, the product range has grown to include high purity and medical gas equipment.



## GCE CORPORATE RESPONSIBILITY

GCE provides high quality premium products. Today's portfolio fits a large variety of applications, from pressure regulators and blowpipes for cutting and welding to sophisticated gas supply systems for medical and electronics industry applications.



## HISTORY

The origins of GCE go back to the beginning of the twentieth century when oxy-acetylene cutting and welding methods were first invented. GCE itself was formed in 1987 through the merging of two gas equipment activities from the world's leading industrial gas companies into one entity.

The GCE Group has grown rapidly since its foundation and leads the restructuring of the European gas equipment industry through mergers and acquisitions. Headquarters are based in Malmö, Sweden with the Group having activities in all European markets, and developing businesses in Russia, China, India and South America. The major Production centres are located in Europe and Asia. Worldwide in excess of 850 people are employed within the GCE group today.

# GCE CUTTING AND WELDING TECHNOLOGIES

Welding is one of the leading processes within metal fabrication. Driven by innovations it is widely used as the main technology in areas such as construction, automotive, the transport sector, shipyard industries, offshore and several others.

Metal sheets are fabricated by thermal cutting processes and joined to ensure a rigid and high quality construction. High quality standards and fundamental safety precautions are prerequisite in all works related to cutting and welding technologies.

GCE Cutting and Welding Technologies (GCE CWT) is one of the global market leaders in gas welding, oxy-fuel cutting, brazing, heating processes. GCE CWT provides a full range of gas pressure regulators arc welding, gas economizers, safety equipment and a comprehensive global range of torches specially designed to meet international standards and local market requirements.

With strong focus on innovations and global market coverage GCE provides solutions which fits to the customer needs. Experienced sales teams supported by application, marketing and technical experts promote the latest GCE solutions within global distribution network on daily basis. Dedicated production team cooperates in two main production facilities and the complete organisation is formed as a Value stream team creating added value to all stake holders.

## SIMPLY SAFE

Safety is always a primary concern in an oxygen/fuel process and GCE is fully committed to the elimination of all risks in this process. It is not only visible on the complete range of safety devices for oxy-fuel applications. Safety is the main objective within all range of GCE CWT products, applications and as well as within internal production processes.

## QUALITY TIME

All equipment from GCE is engineered and produced with highest focus on quality. High quality is the base for all activities and by using Lean processes and 6-Sigma tools we constantly refine and develop existing procedures. All GCE CWT products are designed, tested and manufactured within the quality management system ISO 9001 and in accordance with following regulations and global standards (selected short-list) :

- 2014/68/EC, Pressure Equipment Directive
- 2006/42/EC Machinery Directive
- ISO 2503, Cylinder regulators
- ISO 5172, Cutting, welding, heating torches and nozzles
- EN 730, ISO 5175, Safety devices
- ISO 3821, Rubber hoses
- EN 561, Quick couplers
- ISO 5171, Pressure gauges

## ALL SYSTEMS GO

GCE is one of the global drivers of oxy-fuel innovations. Well known solutions are innovative safety systems, pressure regulators and heating equipment. A new program of Intelligent Torches and Systems for oxy-fuel cutting has been launched recently and there is still significant potential to increase the efficiency of oxy-fuel cutting technology. This is the reason for GCE to continuously develop the GCE FIT+® cutting torch solutions. Together with our partner, IHT Automation, GCE believes that a higher level of integrated automation is the future of oxy-fuel cutting. The current result of the development is the range of automated cutting systems which became as simple as a "plug and play" solution.

## CUSTOMERS FIRST

Everything we do is conducted in close co-operation with our customers and users. GCE is a service-oriented company which keeps close contact with both its customers and end-users. Thanks to a high level of experience and technical competence within cutting and welding technologies GCE has today a global network of loyal distributors which enables to develop right solutions for the global as well as for local markets.

It's no coincidence that, where the challenge and demands are the greatest, you will find GCE hard at work.







## CYLINDER REGULATORS



# CYLINDER REGULATOR

# ECOSAVER

The GCE ECOSAVER is the high end product in the category of cylinder regulators with integrated gas economizer. It reduces shielding gas consumption during MIG/MAG/TIG welding operations by keeping high quality of the welds. It is an optimal tool for each welding shop decreasing process costs by controlling gas consumption.

Standard pressure regulator for shielding gas provides instable gas flow with flow peaks. These peaks of the waste gas increases cost of the welding operation and also leads to the poor welds. ECOSAVER optimizes gas flow keeping it constantly on the preadjusted level.

This prevents pressure and flow surges from being created in the system. Surges can create gas wastage and give rise to a poor weld. Weld quality and gas consumption are optimised when the ECO Saver is used as part of the control system.

## FEATURES / ADVANTAGES / BENEFITS

- Cylinder regulator with gas saver and flow meter.
- Applicable with all type of the shielding gases for MIG/MAG/TIG welding (Ar, Ar-CO<sub>2</sub>, Ar-CO<sub>2</sub>-O<sub>2</sub>, CO<sub>2</sub> etc.).
- Provides consistent and stable gas conditions around the weld.
- Available with connections for most markets.
- Less «downtime» from changing cylinders which in turn increases productivity.
- Improved weld quality with less porosity.
- Fewer spare cylinders required in stock which reduces rental charges.
- Reduces the number of deliveries required per year.



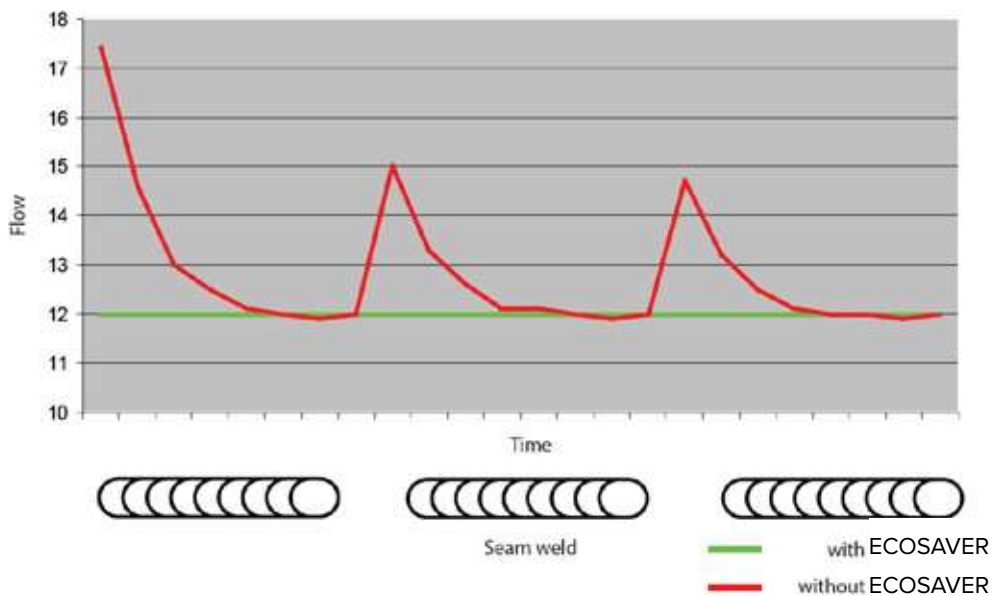
TECHNICAL DATA	
Gas	Ar, Ar/CO <sub>2</sub> , CO <sub>2</sub>
Body	Brass forged
Bonnet	Zn/Al alloy Die Cast
Stems, nuts and fittings	Brass
Diaphragm	EPDM
Seat sealing	PA
Inlet/Outlet connection	Gas specific connection
Maximal Inlet pressure	200 or 300 bar
Outlet Pressure range	0-30 l/min
Temperature range	From -20°C to 60°C
Weight	Approx. according to gas variant: 2,1 kg
ISO 2503 Class	10

## GAS SAVINGS

Shielding Gas is a significant consumable cost in the welding process, and savings with ecosaver can also be very significant. The type of welding determines the savings, highest benefits during spot welding, (significant on/off cycling at the gas supply). However valuable reduction in costs can still be achieved even on longer seam runs. Typical expected savings :

TYPE OF WELD	GAS SAVING
Spot welding	40-45%
Mostly spot welding plus some seam welding	30-35%
Equal spot / seam	25-30%
Mostly seam welding	18-22%

## COMPARISON OF REGULATOR WITH AND WITHOUT ECOSAVER



# CYLINDER REGULATOR

## DINCONTROL

Premium DINCONTROL series consists of regulators designed for the most common industrial gases and all single cylinder applications up to 300bar filling pressure. They are made to satisfy local ordinances in most countries as regards inlet and outlet fittings, pressure, pressure gauges, and safety requirements. The capacity of the regulators is sufficient for operations involving medium gas consumption.

DINCONTROL series is of robust design for daily use for indoor applications in workshops but also for outdoor on-site operations. Downwards orientated diaphragm casting (bonnet) increases safety of the handling. The material used for the regulators is chosen to suit each specific type of gas. Each regulator is individually adjusted and tested before leaving the factory. All regulators produced after ISO 2503 and tested by BAM.

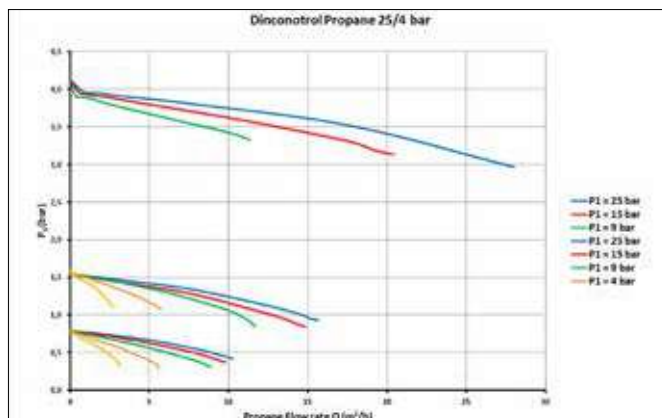
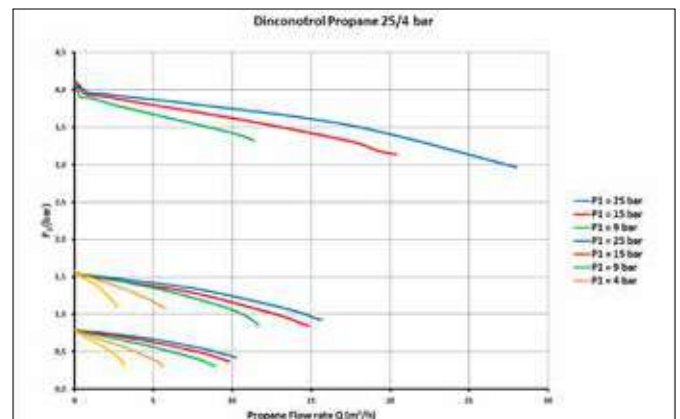
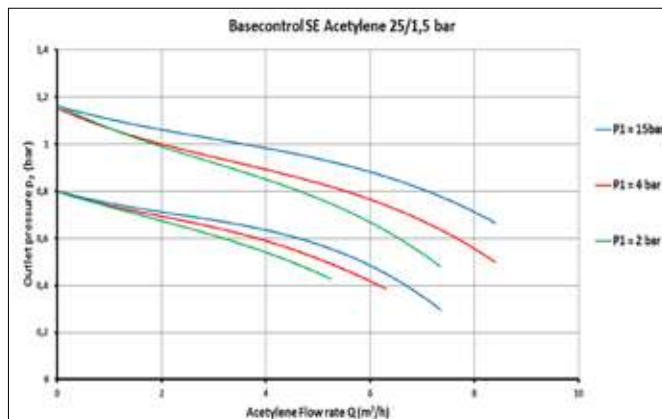
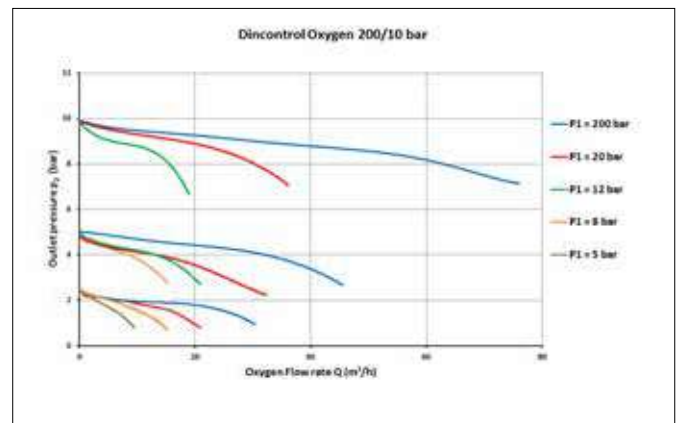
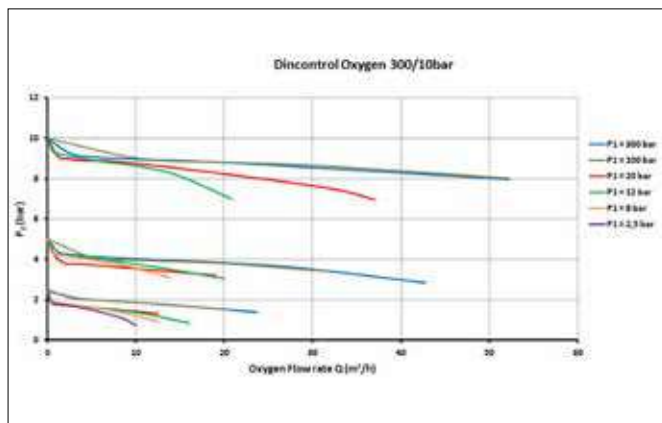
### FEATURES / ADVANTAGES / BENEFITS

- The DINCONTROL regulators are single-stage with superior technical performance.
- Long lifetime thanks to rugged, reliable design.
- Diaphragm casting (bonnet) directed downwards for higher safety.
- Safety pressure relief valve incorporated in all variants to protect low-pressure part of the regulator as well as all devices installed downstream.
- Ergonomic hose coupling ready for installation of flashback arrestor.
- Excellent constant flow and pressure regulation regulation.
- Precise fine adjustment of the output working parameters.
- High precision diaphragm valve.
- Robust and protected encapsulated valve with filter, seat material specially selected for use with each gas.
- Outlet shut-off valve for fast switching off in variants with outlet pressure gauge and needle valve for precise flow adjustment in variants with flow-meter.





TECHNICAL DATA					
Gas	O <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> , He	Ar, Ar/CO <sub>2</sub>	CO <sub>2</sub>	Acetylene	Propane
Body	Brass forged				
Bonnet	Zn/Al alloy Die Cast				
Stems, nuts and fittings	Brass				
Diaphragm	EPDM				NBR
Seat sealing	PA			CR	
Inlet/Outlet connection	Gas specific connection				
Maximal inlet pressure	200 or 300 bar		200 bar	25 bar	
Outlet pressure range	0-10 bar	0-16l/min 0-32l/min		1,5 bar	4 bar
	0-20 bar				
	0-30 bar				
	0-50 bar				
Temperature range	From -20°C to 60°C				
Weight	Approx. according to gas variant: 1,9 kg				
ISO 2503					



# CYLINDER REGULATOR

# BASECONTROL DIN

Basecontrol DIN is a small, compact cylinder regulator dedicated for lower gas consumptions up to 230 bar inlet pressure, in accordance with ISO 2503. It is new product in GCE range of cylinder regulators completing the offer for all types of the customers and applications.

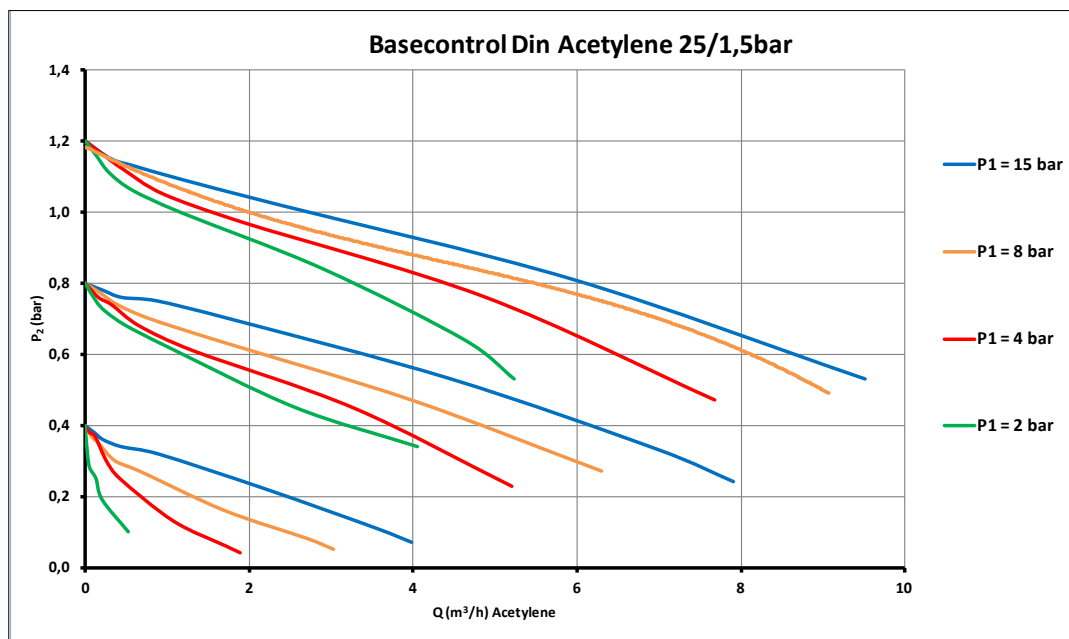
Lightweight design with robust features of Basecontrol DIN predestines its use for small size cylinders and small workshops, mobile applications and on-site applications. But it can be also used with heavy duty load in 24/7 operated industries.

## FEATURES / ADVANTAGES / BENEFITS

- Single stage regulator according to ISO 2503 for operation up to 230bar service.
- Diaphragm casting (bonnet) orientated downwards for higher safety of the handling.
- Pressure gauges with three scales in bar, kPa, psi.
- Light-weight design for use with small and also standard size cylinder.
- Pressure relief valve to protect against overpressurizing.
- Inlet connection complying to local standards.
- Ergonomic handwheel for easy pressure adjustment.
- Useful for common applications of technical gases.



TECHNICAL DATA					
Gas	Oxygen	Ar, Ar/CO <sub>2</sub>	CO <sub>2</sub>	Acetylene	Propane
Body	Brass forged				
Bonnet	Zn/Al alloy Die Cast				
Stems, nuts and fittings	Brass				
Diaphragm	EPDM				NBR
Seat sealing	PA			CR	
Inlet/Outlet connection	Gas specific connection				
Maximal inlet pressure	230 bar		200 bar	25 bar	
Outlet pressure range	0-10 bar	0-24 l/min		1,5 bar	4 bar
Temperature range	From -20°C to 60°C				
Weight	Approx. according to gas variant: 1,18 kg				
Gas	3	20	20	2	1



# CYLINDER REGULATOR

## MULTISTAGE (S2+)

GCE MULTISTAGE regulators designed to provide accurate, fluctuation free delivery for precision applications such as shielding gas arc welding, CNC oxy-fuel cutting or laboratory use use of technical gases.

The first stage reduces the inlet pressure by over 90% and the large second stage diaphragm ensures accurate delivery pressure with keeping of enough flow for medium gas consumption applications..

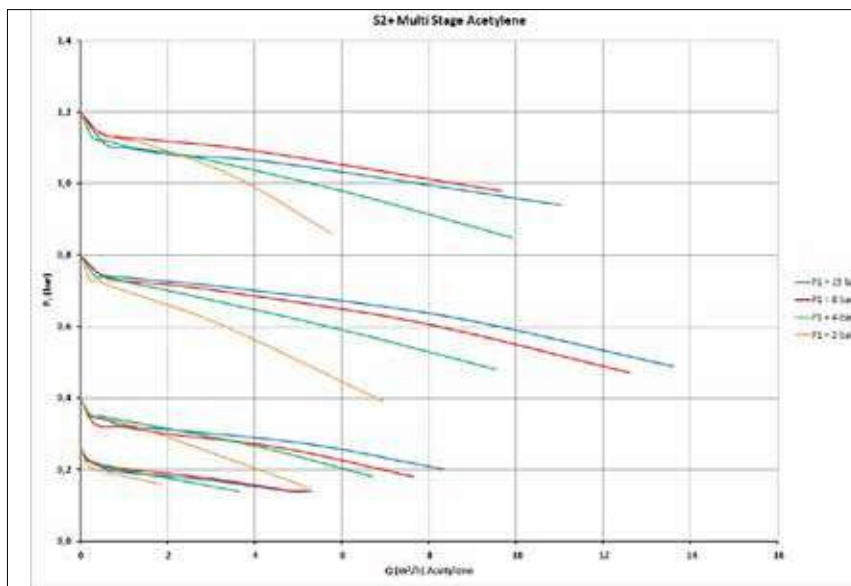
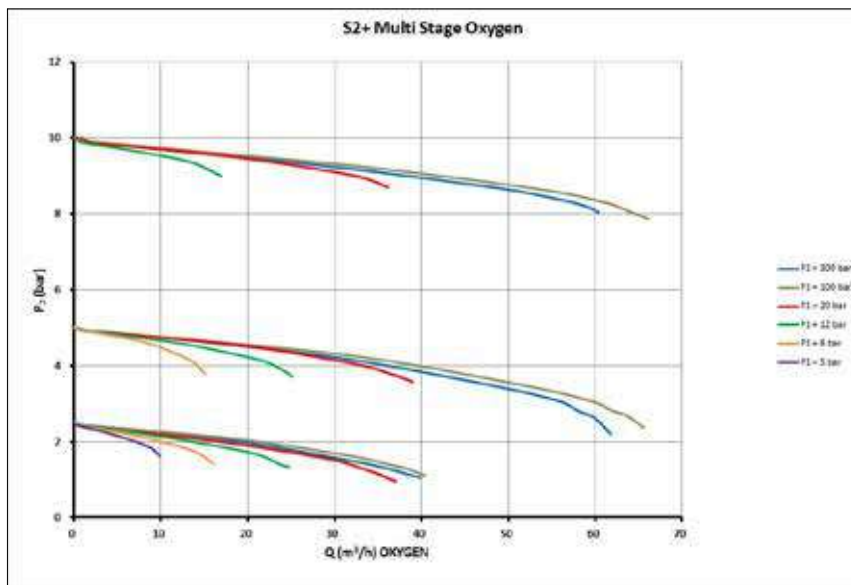
GCE MULTISTAGE regulators are precision built to latest EN ISO 2503 and EN ISO 7291 standards to provide maximum accuracy and safety. These regulators have the additional feature of being able to pipe away gases from the relief valve port, and comply with the stringent requirements of EN ISO 7291 even for strict manifold application.

### FEATURES / ADVANTAGES / BENEFITS

- Double stage design for high precision of the outlet pressure and flow.
- Top safe bulkhead design, high accuracy pressure gauges.
- Rugged design with big diameter of the second stage diaphragm for increased flow capacity.
- Internal pressure relief valve for the first stage and top mounted relief valve of the second regulation stage.
- Inlet connection complying to local standard with both side entry and bottom entry orientation.
- Ergonomic handwheel for easy pressure adjustment.
- Body and first stage bonnet made of high quality Brass alloy.
- Second stage bonnet of Zn-Al alloy powder painted for keeping high corrosion resistance.



TECHNICAL DATA				
Gas	O <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> , He	Ar, Ar/CO <sub>2</sub>	CO <sub>2</sub>	Acetylene
Body	Brass forged			
Bonnet	Zn/Al alloy Die Cast			
Stems, nuts and fittings	Brass			
Diaphragm	EPDM			
Seat sealing	PCTFE/CR			CR
Inlet/Outlet connection	Gas specific connection			
Maximal inlet pressure	200 or 300 bar		200 bar	25 bar
Outlet pressure range	0-1,5 bar	0-16l/min 0-35l/min		1,5 bar
	0-2 bar			
	0-4 bar			
	0-10 bar			
Temperature range	From -20°C to 60°C			
Weight	Approx. according to gas variant: 1,9 kg			
ISO 2503				





# CYLINDER REGULATOR

# UNICONTROL

Cylinder regulator UNICONTROL is the premium regulator for applications of all technical gases up to 300bar service. It has been designed to suit to small and medium gas consumption, in line with ISO 2503. With its compact design the regulator fits to all common cylinder guards including the latest composite cylinder designs from gas market leaders.

High reliability of the design and long lifetime enables product use in both indoor and outdoor applications. Internal encapsulated valve technology ensures stable gas and flow regulation as well as smooth parameters adjustment. With side entry and bottom entry, it can be used with all common types of cylinder valves. Variant for shielding gas arc welding with flow meter can be extended with second flow meter for two welders operation or for use with weld root shielding gas (forming gas).

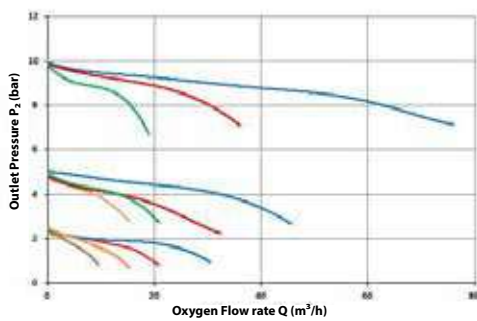
## FEATURES / ADVANTAGES / BENEFITS

- UNICONTROL regulators fully conform to all paragraphs of International Standard ISO 2503.
- Uncompromised safety during handling and operation. The UNICONTROL regulators use a filter protected fully encapsulated valve, well proven over several generations of GCE regulators.
- The body is made of solid forged, high quality brass, polished and chemically stabilized.
- The zinc die-cast bonnet is protected by a double layer powder painting to providing a guarantee corrosion resistance even in very aggressive environments.
- For operational safety the integrated Pressure Relief Valve, located on the rear of the body is designed to protect low pressure part of gas supply against overpressurizing.
- Type-tested and certified by BAM Berlin (The German State Testing Institute).

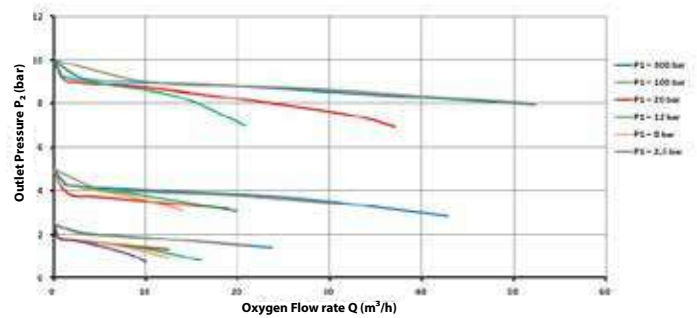


TECHNICAL DATA					
Gas	O <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> , He	Ar, Ar/CO <sub>2</sub>	CO <sub>2</sub>	Acetylene	Propane
Body	Brass forged				
Bonnet	Zn/Al alloy Die Cast				
Stems, nuts and fittings	Brass				
Diaphragm	EPDM				NBR
Seat sealing	PA			CR	
Inlet/Outlet connection	Gas specific connection				
Maximal inlet pressure	200 or 300 bar		200 bar	25 bar	
Outlet pressure range	0-10 bar	0-16l/min 0-32l/min		1,5 bar	4 bar
	0-20 bar				
	0-30 bar				
	0-50 bar				
Temperature range	From -20°C to 60°C				
Weight	Approx. according to gas variant: 1,4 kg				
ISO 2503					

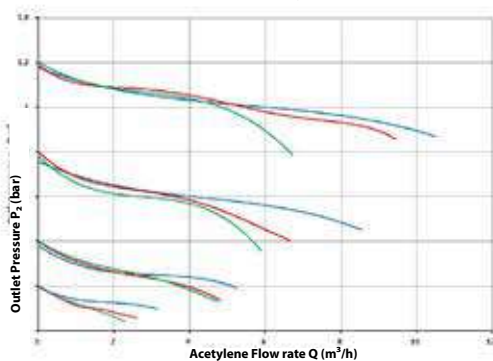
Unicontrol Oxygen 200/10 bar



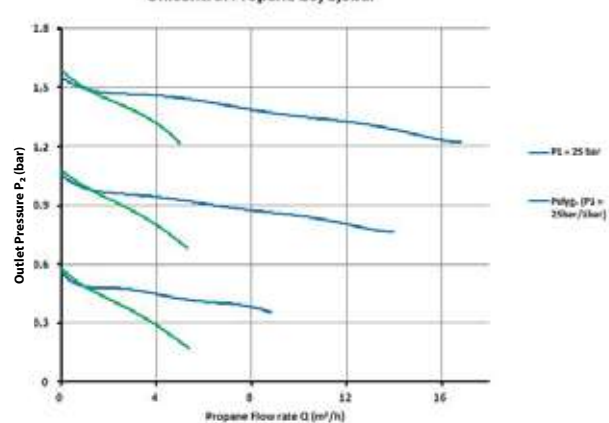
Unicontrol Oxygen 300/10 bar



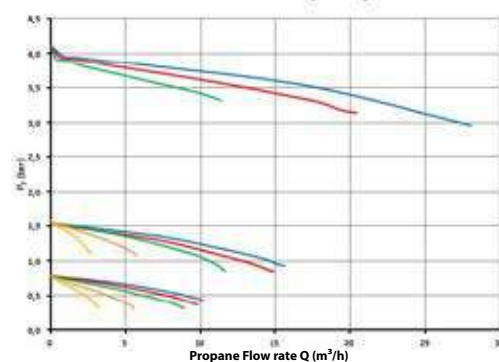
Unicontrol Acetylene 25/1,5 bar



Unicontrol Propane 25/1,5 bar



Unicontrol Propane 25/4 bar



## CYLINDER REGULATOR

# JETCONTROL 600 (S SERIES)

JETCONTROL 600 (S Series) are single stage, two gauge cylinder regulators extensively used in oil refineries, refrigeration laboratories or industrial processes requiring precise and stable delivery of high pressure industrial gases. It is excellent tool for high pressure testing of vessels and various pipelines for gas and liquid supply.

Regulators are primarily designed, tested and manufactured to operate on max. inlet pressure up to 300 bar and providing pressure outlet up to 206 Bar. Its robust design, top grade materials and strictly controlled manufacturing and testing procedures guarantee high operational safety even if working with small molecular gases (like helium or hydrogen) at very high pressures.

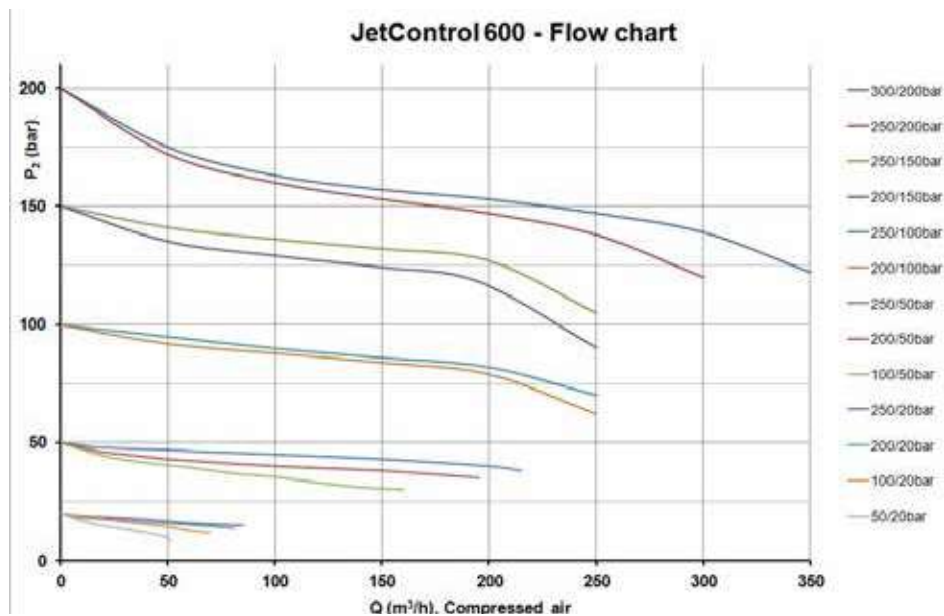
Key components are manufactured from high tensile brass, use of extra safe and accurate bulkhead gauges, double layer high grade stainless steel diaphragms and efficient metal filters help to prolong regulator service life and ensure trouble-free operation of JETCONTROL 600 (S Series) regulators

### FEATURES / ADVANTAGES / BENEFITS

- Robust design for high outlet pressure up to 206 bar.
- Smooth outlet pressure adjustment thanks to massive T-bar with long lever to generate bigger torque and with bronze bushing to reduce friction.
- Top safe bulkhead design, high accuracy pressure gauges.
- Inlet connection complying to local standards with both side entry and bottom entry orientation.
- Body and bonnet made of a special high tensile Brass alloy.
- Easy connection of the outlet pipe with Parker fittings.
- Double layer stainless steel diaphragm.
- Higher corrosion resistance with transparent powder painting.



TECHNICAL DATA					
Gas		N <sub>2</sub>	Ar	He	H <sub>2</sub>
Body	High tensile brass, chemically stabilized and transparent powder painted				
Bonnet	High tensile brass, chemically stabilized and transparent powder painted				
Stems, nuts and fittings	High tensile brass				
Diaphragm	Stainless steel, two layer				
Seat sealing	PA				
Inlet/Outlet connection	Gas specific connection, outlet with Parker fitting				
Maximal inlet pressure	300 bar				
Outlet pressure range	0-28 bar 0-103 bar 0-206 bar				
Temperature range	From -20°C to 60°C				
Weight	Approx. 2kg				
ISO 2503					



## CYLINDER REGULATOR

# BASECONTROL SE, BE

BASECONTROL is the single stage cylinder regulator for common applications of technical gases up to 230bar service. It has been designed for small and medium gas consumption, in line with ISO 2503.

Regulator provides very good outlet pressure stability thanks to big diaphragm diameter. Compact, light-weight body fits to use during on-side handling or for maintenance operations in the workshop combined with small size cylinders (5-50 liters). Design is made with side entry (SE) and bottom entry (BE) to fit for all common types of cylinder valves.

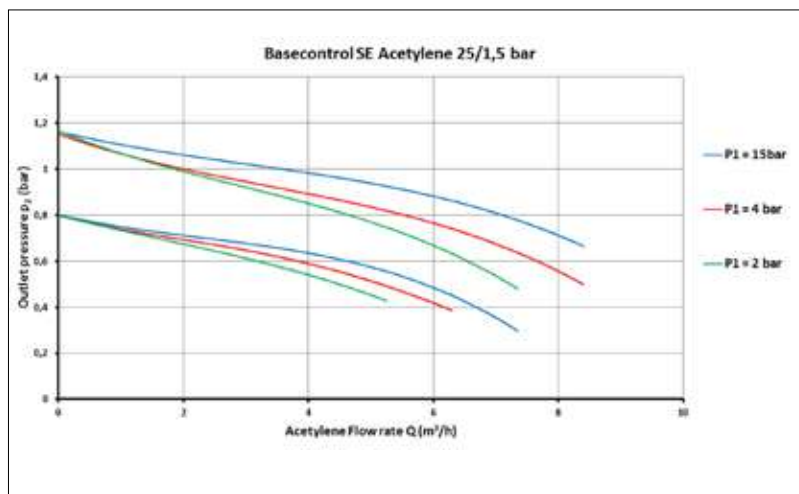
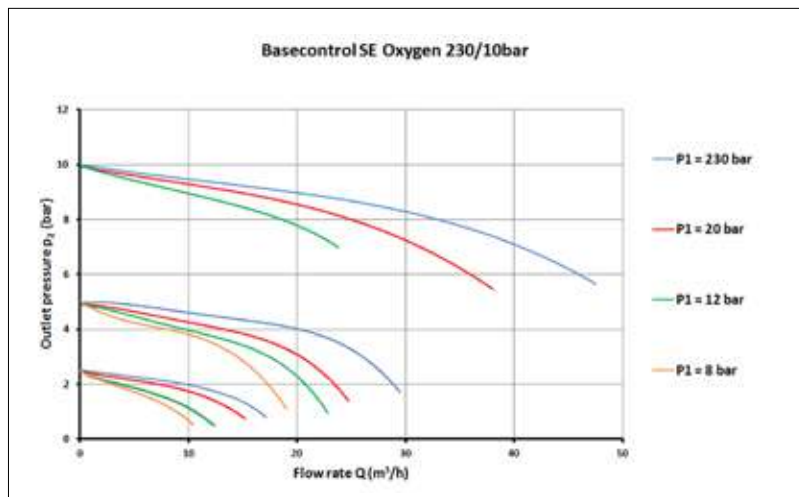
### FEATURES / ADVANTAGES / BENEFITS

- Single stage regulator according to ISO 2503 for safe operation up to 230bar service.
- Pressure gauges with three scales in bar, kPa, psi.
- Light-weight design for use with small cylinder.
- Safe handling with pressure relief valve.
- Inlet connection complying to local standard with both side entry (SE) and bottom entry (BE) orientation.
- Ergonomic handwheel for easy pressure adjustment.





TECHNICAL DATA					
Gas	O <sub>2</sub> , N <sub>2</sub> , Ar	Ar, Ar/CO <sub>2</sub>	CO <sub>2</sub>	Acetylene	Propane
Body	Brass forged				
Bonnet	Zn/Al alloy Die Cast				
Stems, nuts and fittings	Brass				
Diaphragm	EPDM				NBR
Seat sealing	PA			CR	
Inlet/Outlet connection	Gas specific connection				
Maximal inlet pressure	230 bar		200 bar	25 bar	
Outlet pressure range	0-10 bar	0-24l/min		1,5 bar	4 bar
Temperature range	From -20°C to 60°C				
Weight	Approx. according to gas variant: 1,18 kg				
ISO 2503	3	20		1	



## CYLINDER REGULATOR

# GAS ECONOMISIER GS40

The GCE Gas economiser is the leading accessory for shielding gas arc welding as MIG, MAG and TIG welding technologies. With its small and compact design, the GS40 can be installed downstream most common cylinder pressure regulators or outlet point regulators with flow control. GS40 stabilizes flow and optimises shielding gas pressure in the hose during welding process. Cost of the shielding gas is important factor influencing total cost balance of the welding operation. The savings with GS40 represents up to 0,5ltr of the shielding gas on each average weld. Optimal gas delivery with proper defined pressure and flow-rate improves quality of welding. Cost saving and quality improvement in this area give the advantage to the user on the competitive market.

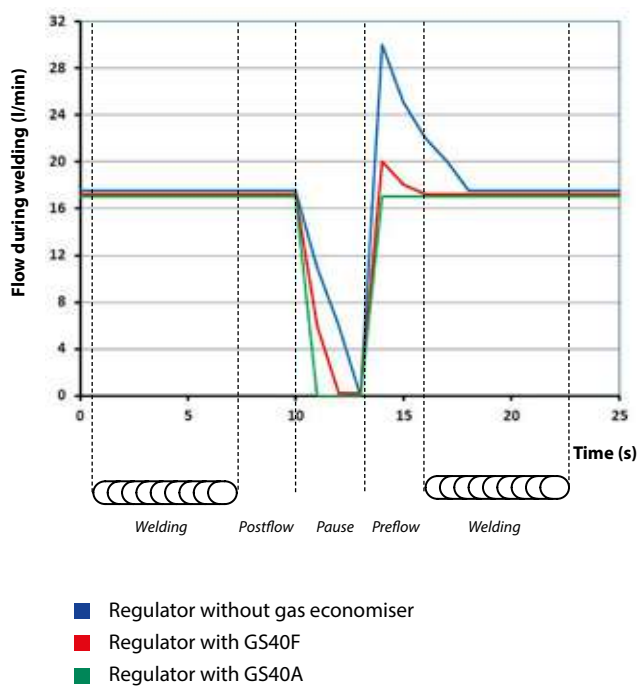
### FEATURES / ADVANTAGES / BENEFITS

- Shielding gas saving up to 40%.
- Savings represents up to 0,5 ltr of the shielding gas on each average weld.
- Increases welding quality by delivering of the optimal amount of the shielding gas.
- Minimizes weld porosity.
- Stabilizes outlet pressure of the standard cylinder regulator which eliminates gas flow surges and flow turbulences.
- Can be installed with all common shielding gas regulators including outlet point regulators.
- Adjustable variant to be used with regulators with flow-meters.
- Fixed variant for regulators with litre-scaled pressure gauges.



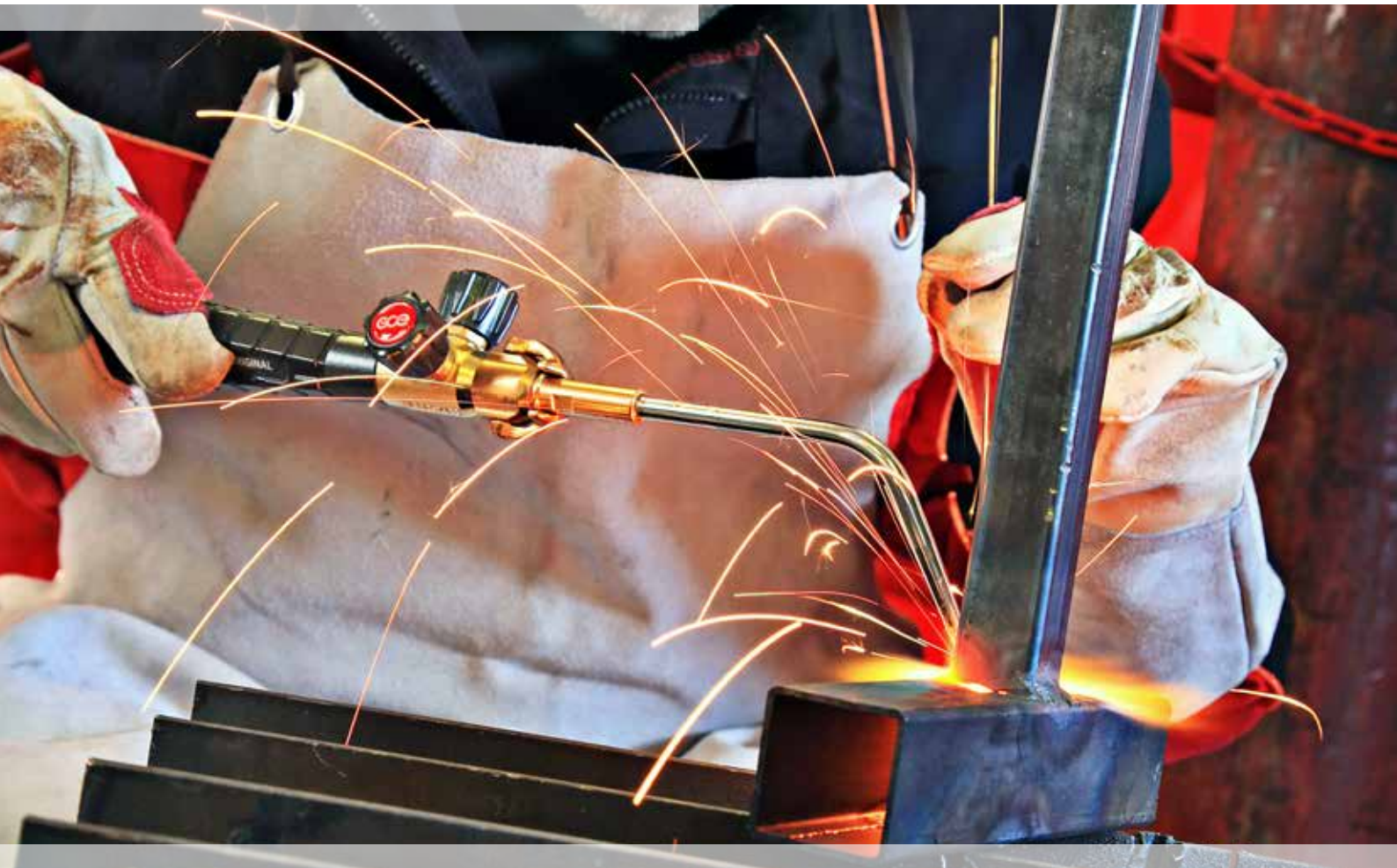
TECHNICAL DATA	
Gas	Ar, Ar/CO <sub>2</sub> , CO <sub>2</sub>
Body	Aluminium
Bonnet	Zn/Al alloy Die Cast
Stems, nuts and fittings	Brass
Diaphragm	EPDM
Seat sealing	PA
Inlet/Outlet connection (EN 560)	Country specific connection
Maximal inlet pressure	30 bar
Outlet Pressure range	0-32l/min
Temperature range	From -20°C to 60°C
Weight	Approx. according to gas variant: 0,4 kg

## PRINCIPLE OF GAS SAVING



# MANUAL TORCHES - COMBINED OXY-FUEL SYSTEMS

## MANUAL TORCHES FOR WELDING



# MANUAL TORCHES - COMBINED OXY-FUEL SYSTEMS

## X11® ORIGINAL

The GCE X11® Original is a complete system for cutting, welding, heating and soldering. With its ergonomic design and wide range, developed by GCE, it's probably the most attractive product for light duty applications on the market.

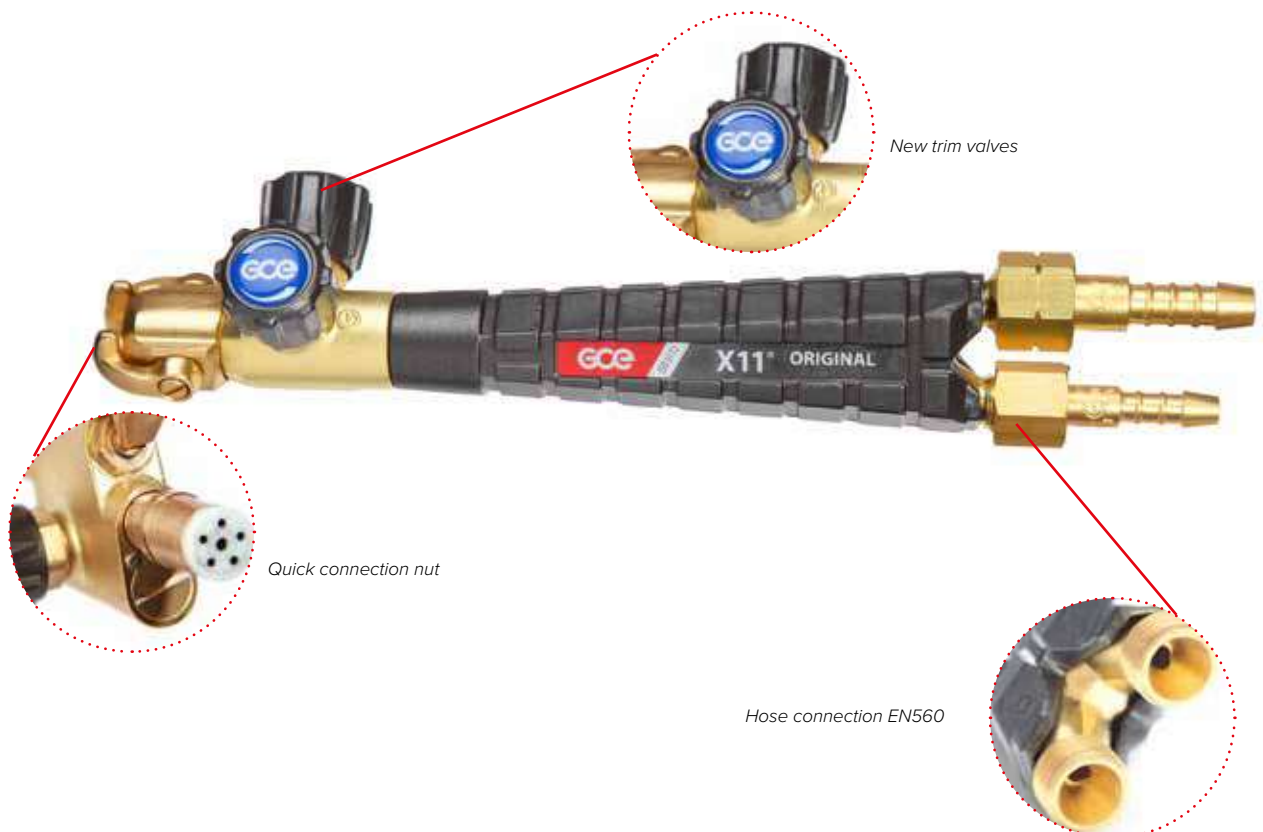
GCE offers a wide range of complete X11 sets for various applications. They are all special designed to make it easy for the user to select what's needed for the work to be done. The equipment is packed in robust boxes for good protection and easy transportation.

The X11® Original is a complete system comprising everything you likely need for general welding, heating, brazing and cutting applications.

The X11® Original fully meets the requirements of EN ISO 5172 and is manufactured according to the Quality Management System ISO 9001.

### FEATURES / ADVANTAGES / BENEFITS

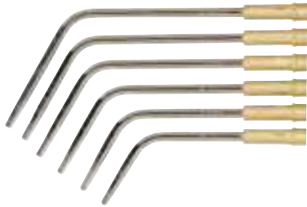
- The teflon washers on all attachments, for perfect seal, are easily replaced.
- The quick connection nut enables rapid exchange of the welding head and the cutting attachment.
- The new trim valve design and the cutting oxygen lever are easy to set and adjust.
- A vast number of accessories increases the flexibility of the X11® Original torch system.
- The X11® Original might be used for acetylene as well as for propane.





## WELDING AND HEATING HEADS

The single flame, backfire safe, welding heads come in a flow range from 40 l/h up to 1250 l/h and have spanner grips for easy exchange of tips. The welding heads are made of chrome-plated copper for efficient heat dissipation and are fully swaged to give a perfect flame. Flexible welding heads, heating attachments up to 2500 l/h, and soldering heads are also available.



Welding attachments



Flexible attachment



Heating attachment acetylen



Heating attachment propane

## CUTTING ATTACHMENTS

With the GCE X11 Original cutting attachment its possible to cut up 150 mm thickness.

X11 Original has several different cutting attachment alternatives:

- Lever valve or wheel valve for cutting oxygen
- Acetylene or propane
- Injector or pressure torch
- Nozzle mount 90° or 0°
- Several different ranges of cutting nozzles



Injector cutting attachment



Nozzle mix attachment



Easily replaceable teflon washers

## EFFICIENT CUTTING NOZZLES

A wide range of nozzles for a better cutting performance is available in the X11 Original system. The solid cutting nozzle with flat seat sealing for the acetylene injector attachment, the two-piece nozzle for the propane attachment, as well as the three-seat nozzle for nozzle mix of the preheating gases, provide a complete and efficient assortment of nozzles.



HA411

ANME

PNME

AHP 433 PROPAN - NATURAL GAS

# MANUAL TORCHES - COMBINED OXY-FUEL SYSTEMS

## X21® ORIGINAL

The GCE X21® Original with large capacity for welding, cutting, soldering, heating and straightening. X21® Original is a combined gas welding and gas cutting torch for manual work. It is a pressure torch (II) that is designed on the basis of the stringent demands stipulated by standard EN ISO 5172.

X21 is a versatile and complete torch system, with cutting attachments for injector or pressure principle, and with round or oval shank, for all medium and heavy duty cutting, welding, and heating jobs. With the pressure principle you use 3-cone cutting nozzles, with the injector principle you use fl at seal cutting nozzles. The choice is yours.

All X21 equipment fully meets the requirement of EN ISO 5172 and is manufactured at our factory under the Quality Management System ISO 9001.

X21 satisfies the high expectations that users have of a quality torch. With the X 21 pressure torch, the gases are mixed in the torch head, which increases safety against flashbacks. Pressure torches entail that Oxygen and fuel gas for the heating flame have the same inlet pressure to the nozzle.

X21® Original is available for the fuel gases Acetylene and Propane (LPG). Using Propane as the fuel gas, all the processes apart from gas welding can be used.

### FEATURES / ADVANTAGES / BENEFITS

- Choose between round and oval torch handle.
- Potential to weld material thicknesses up to 14 mm.
- Cut up to 500 mm.
- Perfect for Flame cleaning and straightening.
- Large range of accessories.
- Equipment for powder cutting available.
- Tool-free exchange of the attachment.
- Hand-tightening thanks to double O-ring sealing.

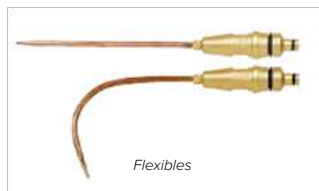


### X21 FOR WELDING

The welding attachments, 8 inserts from 40 to 1250 l/h, are entirely forged from copper with deflect weld spatter. For weld locations that are difficult to access, here are three flexible welding attachments, ranging from 160 to 500 l/h, that are not chrome-plated.



Welding attachment



Flexibles

### X21 FOR HEATING

In addition to various welding attachments, there are three single flame heating attachments for Acetylene, ranging from 1800 to 5000 l/h, as well as three multiple flame heating attachments ranging from 1000 to 5000 l/h. In addition there are four multiple flame heating attachments for Propane, ranging from 1000 to 7000 l/h



Heating Attachment, Single Flame,  
Oxygen-Acetylene



Heating Attachment, Multiflame,  
Oxygen-Acetylene



Heating Attachment, Multiflame,  
Propane

## X21 FOR CUTTING

There are two types of cutting attachment with lever valve or wheel valve suitable for both acetylene and propane. Angles for nozzle head are available in 90°, 75°, 45° and 0°. With X21 it's possible to steel material in thicknesses up to 500 mm. GCE offer a wide range of 3-cone nozzle designs for various applications. The X21 cutting attachment is available both as injector and pressure torch.



## CUTTING NOZZLES, 3-CONE (NOZZLE MIX)



AGN COOLEX®



PNME: Propane-Natrual Gas



ANME: Acetylene



PNME: COOLEX



COOLEX A 341 BENT  
Rivet Nozzle For Acetylene



FGA COOLEX: Acetylene

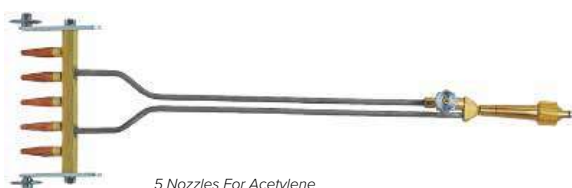


COOLEX A 361 Gouging and Rivet  
Cutting Nozzle For Acetylene

[READ MORE ABOUT THE PATENTED COOLEX SYSTEM ON PAGE 31.](#)

## X21 FOR FLAME STRAIGHTENING

There are two types of cutting attachment with lever valve or wheel valve suitable for both acetylene and propane. Angles for nozzle head are available in 90°, 75°, 45° and 0°. With X21 it's possible to steel material in thicknesses up to 500 mm. GCE offer a wide range of 3-cone nozzle designs for various applications. The X21 cutting attachment is available both as injector and pressure torch.



5 Nozzles For Acetylene



3 Nozzles For Acetylene

## X21 FOR FLAME CLEANING



Acetylene

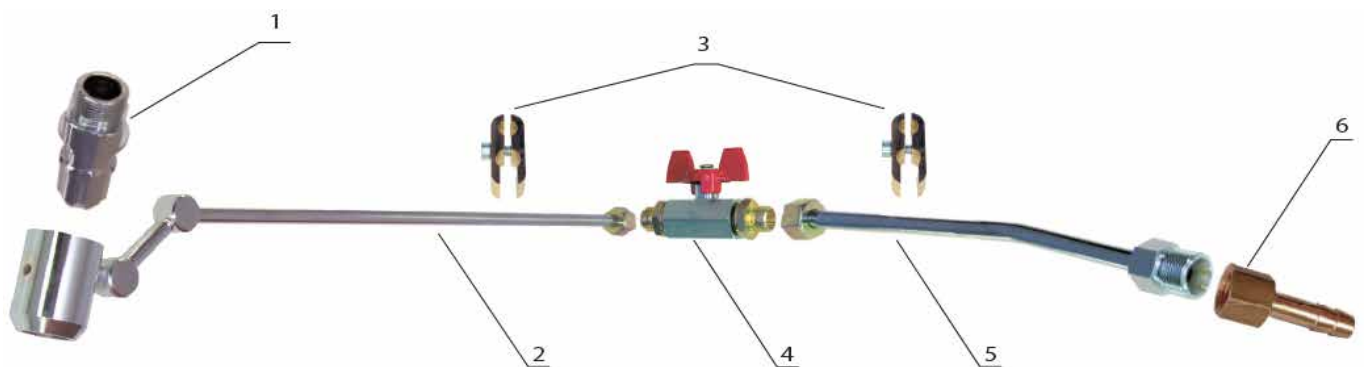


Acetylene

## X21 FOR POWDER CUTTING



## POWDER ATTACHMENT



DESCRIPTION	POSITION
Powder nozzle	1
Powder head with neck	2
Clamp	3
Ball valve	4
Tube with fittings	5
Hose nipple 6,3xG3/8"	6

# MANUAL TORCHES - WELDING TORCH

## JETSOUND SI

This torch is light and easy to handle and developed specially for refrigerator technicians and installers of air- conditioning equipment, who require a torch being easy to handle for reaching narrow or difficult points.

JETSOUND torch allows reducing the movement of the operator's wrist. People who have already used the JETSOUND torch appreciate its perfect flame regulation also with low flow-rates, thanks to the possibility of regulating oxygen flow by means of a pin (micro regulation). This means that the attachment and the knob are on the same axis.

The JETSOUND SI has Flashback arrestors (FBAs) built into the shank to ensure the highest safety during welding. It is not necessary to add on any other protective equipment for shank.

JETSOUND torch is delivered with mounted nozzle (consumption 250 l/h) and set of 6 nozzles with consumption (40, 63, 100, 160, 315 and 400 l/h).

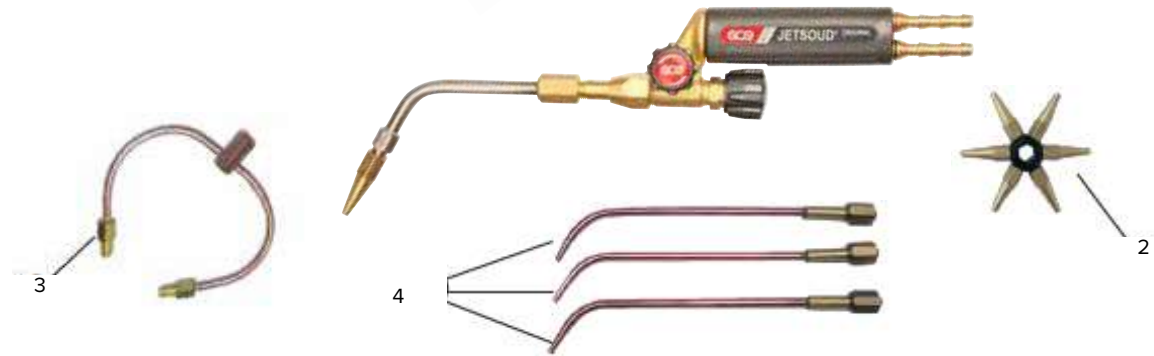
### FEATURES / ADVANTAGES / BENEFITS

- Low weight 0,320
- Compatible for acetylene and propane
- Integrated FBAs
- EN ISO 5172



TECHNICAL DATA	
Weight	0,320 kg
Length	360 mm
Gas	Acetylene, Propane

JETSOUND SI	1
Nozzles for welding (6 pcs) - Acetylene	2
Nozzles for welding (6 pcs) - Propane	2
Double flame attachment	3
Flexible welding attachment 160 l/h	4
Flexible welding attachment 250 l/h	4
Flexible welding attachment 315 l/h	4





# MANUAL TORCHES - CUTTING TORCHES AND NOZZLES

## X511® ORIGINAL

GCE X511® Original, the solution for all Industrial Cutting applications.

The GCE X511® Original cutting torch ranges is made for perfect cutting, developed to meet industry's highest demand. The design and profile is chosen to give perfect balance and optimum control in continuous operation. The X511® Original cutting torch is available for cutting nozzles with IC cone and G1 cone.

### SAFE AND SECURE

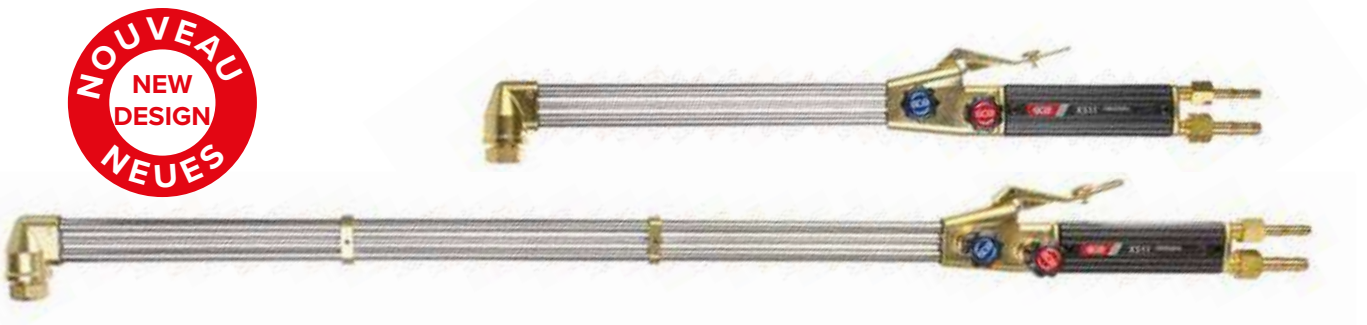
The main body components are brass, designed to withstand rough treatment. The strong metal handle in combination with stainless steel tubes makes the torch robust and safe to use.

### EASY TO HANDLE

The well designed control knobs make it simple and fast to control the flame and the valves are designed to give smoothest possible control. The position of the lever gives ease and comfort of operation.

### HIGH CAPACITY

The X511 Diamond cutting torch is a nozzle mix type and has the capacity for cutting of 300 mm (=14 inch) thickness. All standard three cone nozzles fit.



## FEATURES / ADVANTAGES / BENEFITS

- Oval handle for positive grip.
- The new trim valve design for regulation of preheating oxygen and fuel gas are forward mounted for easiest control of the flame.
- The cutting oxygen lever is specially designed to give maximum control of all operations, ideal for piercing, gouging and rivet washing.
- Length, balance and profile are chosen for best control of operation.
- Low weight.
- The knob valves have a self centering stainless steel valve stem for positive seating and long life.
- High quality brass cutter with stainless steel tubes.
- Large capacity, cuts sheets of 300 mm thickness.
- Compatible for all fuel gases.
- Locking pin on the lever for cutting oxygen.

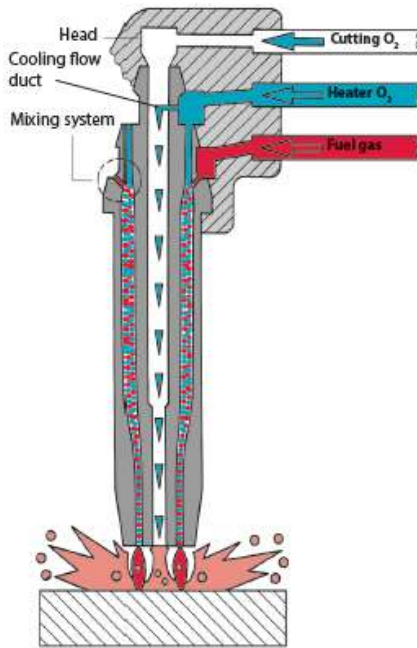
TECHNICAL DATA		90, 75, 180 ANGLE
Length	Weight	
470 mm	1,18 kg	
855 mm	1,50 kg	
1155 mm	1,85 kg	



## PREMIUM NOZZLES FOR GCE X511 ORIGINAL CUTTING TORCH COOLEX® – 3 CONE SEALED CUTTING NOZZLES

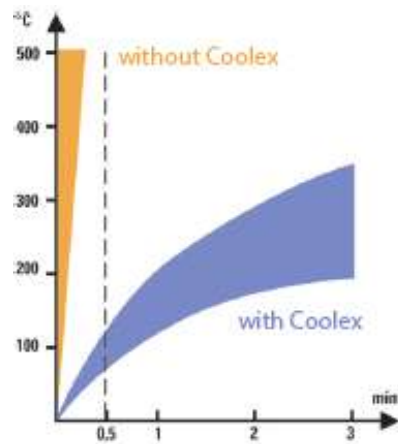
COOLEX® is the generic name for GCE's 3-cone sealed cutting nozzles which are an innovative development based on conventional cutting nozzles. The COOLEX® nozzles have a cooling flow duct patented by GCE.

In a conventional cutting nozzle, hot gas penetrates from the heating flame into the cutting duct, causing inappropriate heating of the cutting nozzle, often up to 500°. The COOLEX® nozzles with a cooling flow duct reduce the temperature of the nozzles and increase the operational function and the life time of the nozzle.



### THE RESULTS :

- Lower temperature
- Fewer operational interruptions



## CUTTING NOZZLES



ANME: Acetylene



PNME: Propane-Natural Gas



COOLEX A 361 Gouging and Rivet  
Cutting Nozzle for Acetylene



FGA: COOLEX Acetylene



PNME: Coolex



COOLEX A 341 Bent Rivet  
Nozzle for Acetylene

# MANUAL TORCHES - CUTTING TORCHES AND NOZZLES

## X501® ORIGINAL

X501 is a reliable and safe torch even under the toughest conditions! The hand cutting torch X 501 is an injector burner (mixer with suction - i), which is used for manual cutting and heating using a mix of oxygen and acetylene or propane. Cutting can be done in steel material up 300 mm thickness.

The hand cutting torch meets all technical requirements and has been developed on the basis of current engineering practice in accordance to EN ISO 5172 standard.

### FEATURES / ADVANTAGES / BENEFITS

- High operating safety even at acetylene pressure.
- The new trim valve design for regulation of preheating oxygen and fuel gas are forward mounted for easiest control of the flame.
- The cutting oxygen lever is specially designed to give maximum control of all operations, ideal for piercing, gouging and rivet washing.
- Length, balance and profile are chosen for best control of operation.
- High flow rate.



Type	Fuel Gas	Length (mm)	Head angle	Inlet connection
X501	Acetylene	575	85 dg	G1/4" - G3/8" LH
X501	Propane	575	75 – 90 dg	G1/4" - G3/8" LH

### CUTTING NOZZLES



Type AC Acetylene



Type AB Acetylene



PUZ 89 Propane

# MANUAL TORCHES - CUTTING TORCHES AND NOZZLES

## CH 70D ORIGINAL

CH 70D is a low-pressure torch cutter premixed oxygen and combustible gases for: acetylene, propane and natural gas. The attachment can be changed to longer or shorter versions depending on the specific use. The nozzles are 2 parts for easy cleaning. The CH 70D has excellent performance and suits very well for pipe cutting, carbon steel cutting and scrap cutting.

### FEATURES / ADVANTAGES / BENEFITS

- Adjustable mixer - One torch for acetylene, propane and natural gas
- Lateral torch cutting lever.
- Low pressure.
- Low gas consumption
- Cut up to 300 mm
- Weight 1,5 kg
- Length : 555 mm



### CUTTING ATTACHMENT

Length	Angle
300 mm	90°, 120°, 180°
500 mm	
700 mm	
750 mm	
1 000 mm	
1 500 mm	



### CUTTING NOZZLES



Acetylene



Propane

## COMPLETE X11® ORIGINAL BOX

### INCLUDES

- X11 Original shank G1/4" + G3/8" LH (1 pce)
- Quick connection nut (1 pce)
- Cutting attachment 90°, with lever (1 pce)
- Cutting nozzle HA 411 (2-4) (3 pcs)
- Welding attachment 80-1000 l/h (6 pcs)
- Spanner (1 pcs)
- Cleaning needles in a case (1 pce)
- Safety non return valve (2 pcs)



## COMPLETE KITS X21®

GCE offer complete equipment kits containing a wide range of components' to fulfill the work to be done by the user. They are all supplied in robust boxes and easy to transport.



### INCLUDES

- Shank
- Cutting attachment
- Welding attachment (6 sizes)
- Nozzles (HA311 - 3 sizes)
- Spanner
- Cleaning needles
- Cutting guide (2 pcs)
- BV12 + nuts
- Set of O-rings



### INCLUDES

- Shank
- Cutting attachment
- Welding attachment (2 sizes)
- Nozzles (HA311 - 1 size)
- Spanner
- Cleaning needles
- BV12 + nuts



# SIMPLY SAFE - GCE THE ORIGINAL COMING SOON



GCE continue to introduce the new design across the torch ranges on the global market, all manufactured in accordance with EN ISO 5172.

Original features and key performance kept.

- **RHÖNA 2001**
- **KOMBI 20 / ZEK 20**
- **KOMBI 18 W**
- **KOMBI 17 / ZEK 17**



## ADAPTERS

*RHONA 2001*



M 27 × 1,5, Schaft: Ø 20 mm

*KOMBI 20 / ZEK 20*



M 27 × 1,5, Schaft- Ø 20 mm

*KOMBI 18 W*



M 24 × 1,5, Schaft: Ø 18 mm

*KOMBI 17 / ZEK 17*

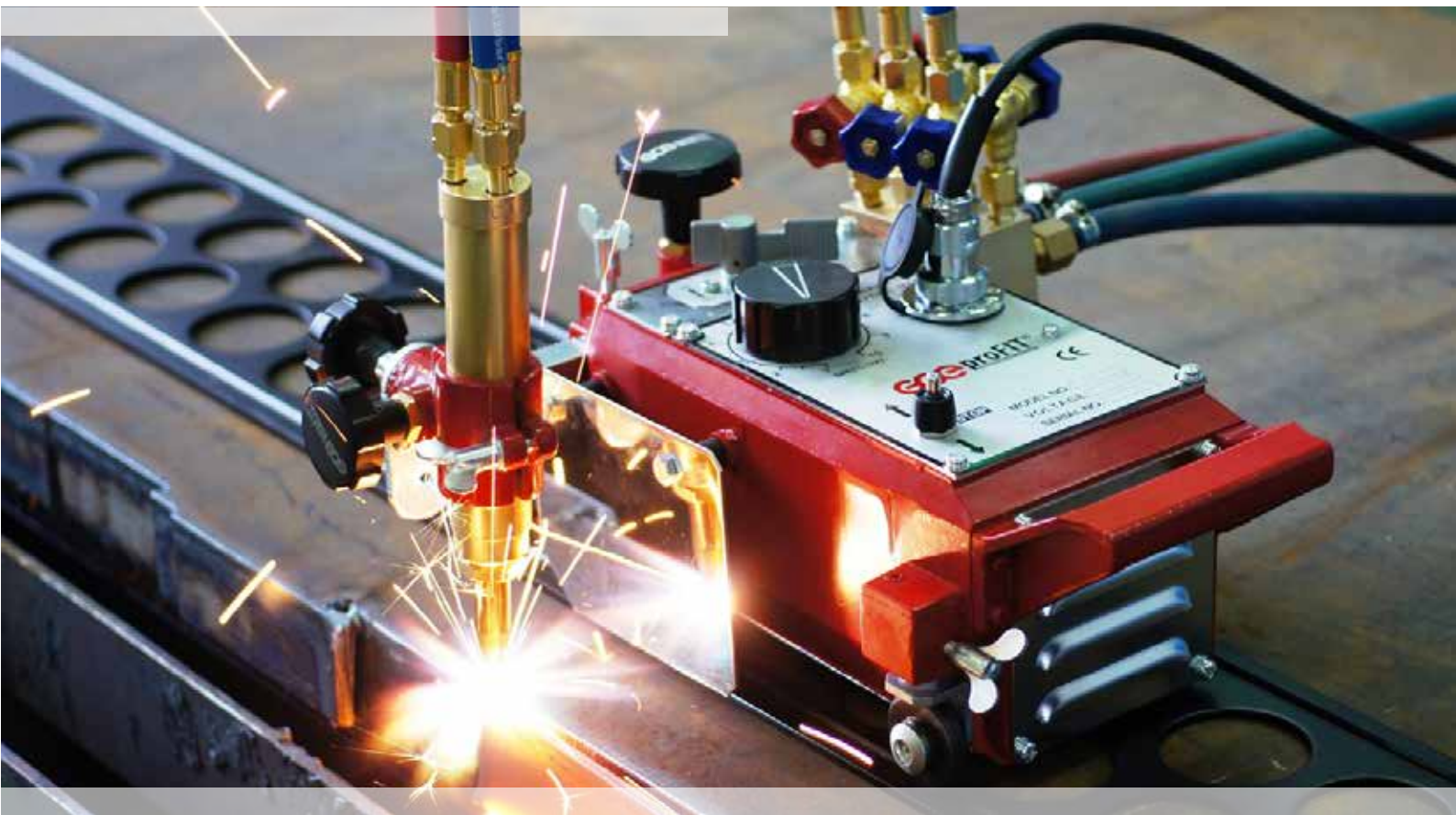


M21,5×20 Gg., Schaft: Ø 17mm

For more information please visit our web site [gcegroup.com](http://gcegroup.com)

# MACHINE CUTTING – PORTABLE MACHINES

## CUTTING EQUIPMENT FOR AUTOMATED CUTTING MACHINES





## RANGE OF PORTABLE CUTTING MACHINES GCE PROFIT

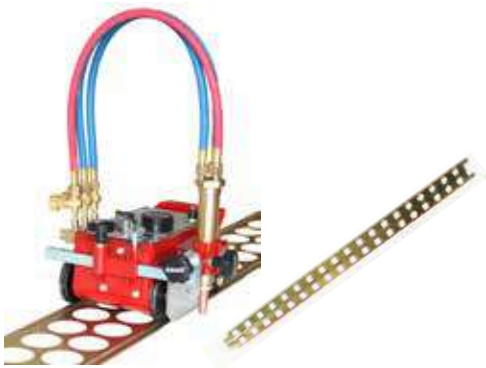
# GCE PROFIT SLM, STRAIGHT LINE CUTTING MACHINE

GCE proFIT® SLM is a universal cutting machine with lightweight design mainly for oxy-fuel cutting applications up to 150 mm metal sheet thickness (up to 100 mm with two cutting torches). It is a rugged but precise portable machine which has many features and benefits. For example it can be used for straight cuts guided by the rail, manually-guided shape cuts, circular cuts and Strip Cutting when using two torches. The cutting torch can be fixed in a vertical position or angled for bevel cutting of metal sheet edges. The machine is ideal for small workshops or as an additional tool to a gantry machine. It can be used indoor but also due to its flexibility it can be used outdoors on the construction sites.

## FEATURES / ADVANTAGES / BENEFITS

- Lightweight portable machine for one-hand manipulation
- Easy installation and operation
- Interlocking, 1,8 m long guide rail
- All common fuel gases service
- Nozzle mixing (IC 30° cone) cutting torches or BIR+, an injector cutting torch technology
- Basic one-torch configuration can be extended for two-torch operation
- Strip cutting and bevel cutting with two torches
- Precise drive system is ensuring constant cutting speed
- Exact adjustment of the torch position
- High speed of motor drive enables machine to be used also for plasma cutting

**GCE** proFIT®



### BASIC MACHINE PACKAGE INCLUDES:

- › Equipment for one torch-cutting application
- › One nozzle mix cutting torch with basic cutting nozzle  
*(The basic package of machine 0870614 does not include cutting torch. One of the torches above needs to be selected.)*
- › Torch holder, torch bar, stainless steel heat shield
- › Internal gas hoses, gas manifold with shut-off valves
- › Power cable 8m with plug DIN

*Guide rail is not included, to be ordered and delivered separately*

TECHNICAL DATA	
<b>Cutting capacity:</b>	up to 150 mm with one torch, up to 100 mm with two torches
<b>Cutting speed:</b>	50 – 1600mm/min
<b>Operation:</b>	forward and reverse with variable speed
<b>Power supply:</b>	230V AC / 50 Hz
<b>Oxygen inlet connection:</b>	G1/4", up to 8 bar, hose min. DN8
<b>Fuel gas inlet connection:</b>	G3/8"LH, up to 1 bar, hose min. DN8
<b>Body dimensions:</b>	175 × 350 × 140 (W × L × H in mm)
<b>Weight:</b>	9,5kg (with one torch configuration)
<b>Rail:</b>	Zn- coated, 1,8m

## RANGE OF PORTABLE CUTTING MACHINES GCE PROFIT

# GCE PROFIT PCM, PIPE CUTTING MACHINE

GCE proFIT® PCM is a universal manually driven cutting machine for oxy-fuel applications with lightweight design, ideal for cutting of pipes up to 100 mm of tube wall thickness.



## BASIC MACHINE PACKAGE INCLUDES:

- > Manually driven machine
- > One nozzle mix cutting torch with basic cutting nozzle
- > Torch holder, torch bar, chain tightening mechanism
- > Internal gas hoses, gas manifold with shut-off valves
- > Basic chain for tube diameter up to 1000 mm
- > For ANME/PNME cutting nozzle please see page 43

TECHNICAL DATA	
Cutting capacity:	up to 100mm of tube wall thickness
Cutting speed:	manually driven
Operation:	forward and reverse manually operated
Oxygen inlet connection	G1/4", up to 8 bar, hose min. DN8
Fuel gas inlet connection:	G3/8"LH, up to 1 bar, hose min. DN8
Body dimensions:	(400 × 500 × 600 ) (Wx L x H in mm)
Weight:	15 kg
Chain links:	Zn- coated, length 1300 mm, for tube diameter 1000 mm

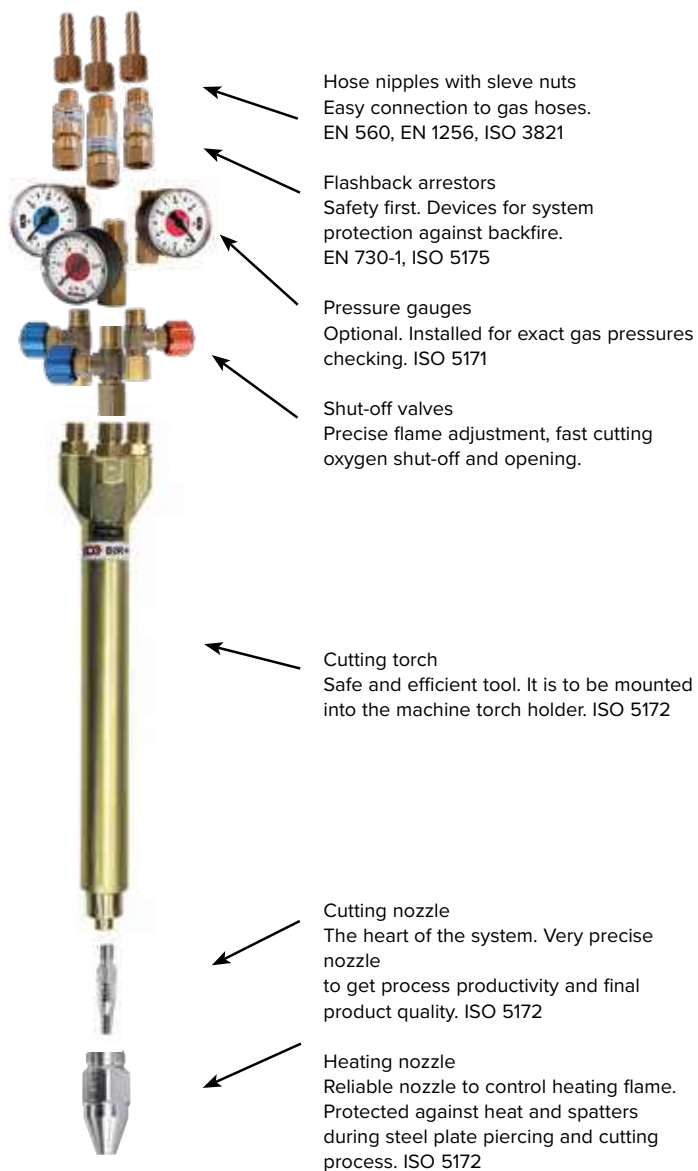


# CUTTING EQUIPMENT FOR AUTOMATED CUTTING MACHINES

## GCE BIR+

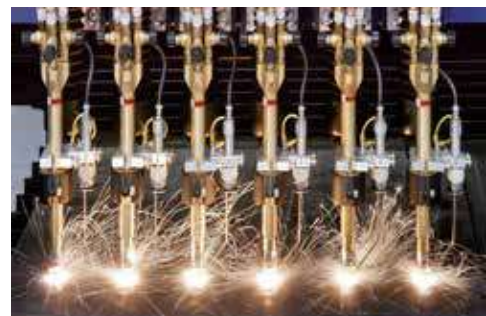
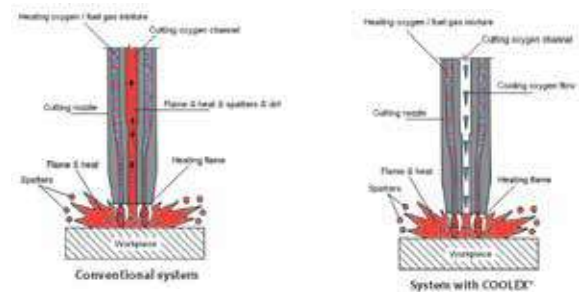
GCE BIR+ is an injector cutting system consisting of various types of torches combined with three lines of cutting nozzles. The system can perform steel cutting up to 300mm plate thickness with all common fuel gas types. GCE BIR+ fits to almost all types of automated cutting machines or cutting robots. With its full compliance with EN ISO 5172, robust design and excellent cutting performance, GCE BIR+ is one of the most popular cutting systems.

### CUTTING SYSTEM DESCRIPTION



### FEATURES / ADVANTAGES / BENEFITS

- High speed oxy-fuel cutting system
- Compatible with all modern cutting machines and robots
- Simple installation of the torch and nozzles
- Safe solution for all fuel gas types
- Easy handling for machine operators
- Detailed cutting parameters charts available
- Cutting performance up to 300mm steel plate thickness
- High quality cuts in accordance with EN ISO 9013
- Prolonged lifetime of the system thanks to incorporated COOLEX®
- Various range of cutting nozzles and accessories for all cutting applications



### GENERAL CONDITIONS FOR HIGH QUALITY AND EFFICIENT CUTTING

GCE machine cutting nozzles are designed to reach the cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by setting-up recommended cutting parameters of particular nozzles shown below, cutting of straight cuts, by using of clean metal sheet surface, oxygen with purity 99,5% or better. Correct values of gases pressures are to be measured at the torch inlet. Parameters are prepared for mild steel with maximal carbon content of 0,25%. Quality cutting machine with proper gas supply system, original GCE cutting equipment and new, undamaged, original cutting and heating nozzles are to be applied.



# OVERVIEW OF CUTTING NOZZLES



Fuel Gas	Standard cutting	High speed cutting	High performance cutting
A	AC	ASD	AHD
PMYF	PUZ	PSD	PHD

Cutting nozzles are always delivered in the 5 units package, heating nozzle package contains 1 unit.

## AC STANDARD CUTTING NOZZLES FOR ACETYLENE



Heating nozzle    Cutting nozzle

## ASD HIGH SPEED CUTTING NOZZLES FOR ACETYLENE



Heating nozzle    Cutting nozzle

## AHD HIGH PERFORMANCE CUTTING NOZZLES FOR ACETYLENE



Heating nozzle    Cutting nozzle

## PUZ STANDARD CUTTING NOZZLES FOR LPG, PROPANE, NATURAL GAS (PMYF)



Heating nozzle    Cutting nozzle

## PSD HIGH SPEED CUTTING NOZZLES FOR LPG, PROPANE, NATURAL GAS (PMYF)



Heating nozzle    Cutting nozzle

## PHD HIGH PERFORMANCE CUTTING NOZZLES FOR LPG, PROPANE, NATURAL GAS (PMYF)



Heating nozzle    Cutting nozzle

SAFETY DEVICES FOR REGULATORS  
SAFETY DEVICES FOR TORCHES  
QUICK COUPLINGS



# SAFETY DEVICES FOR REGULATORS

## SAFE-GUARD-5

The latest innovation from GCE the SAFE-GUARD-5 offers the maximum level of protection required by ISO 5175-1 to prevent dangerous flashbacks from reaching the regulator and cylinder supply sources.

There are many conditions that can cause a flashback, the fitting a flashback arrestor is commonsense. By using the Safe-Guard-5 on regulator outlets you reach the highest level of safety available on the market

### FEATURES / ADVANTAGES / BENEFITS

- Maximum number of safety features defined by ISO 5175-1
- High visibility trip/reset lever coupled with quick acting reset even when pressurised.
- Angled inlet to minimise hose damage.
- 100% production flame tested for Flashback resistance.
- Inspection dates can be marked on product for easy reference.

### FUNCTIONS :

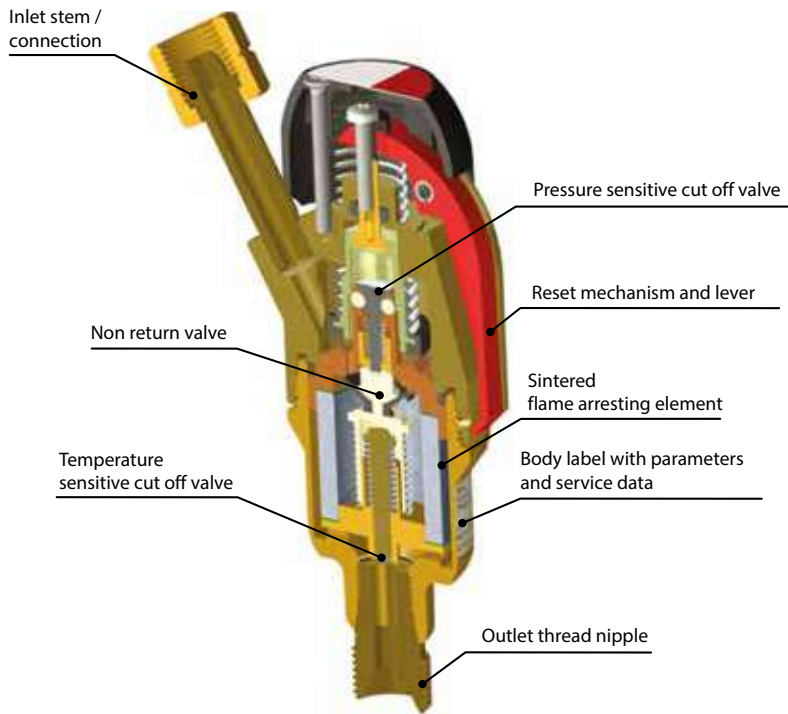
- Flame arresting element (FA)
- Non return valve (NV)
- Pressure sensitive cut off valve (PV)
- Temperature sensitive cut off valve (TV)
- Reset mechanism to clearly advise unit activation (RM)



INTERNAL SAFETY DEVICES

GCE – SIMPLY SAFE

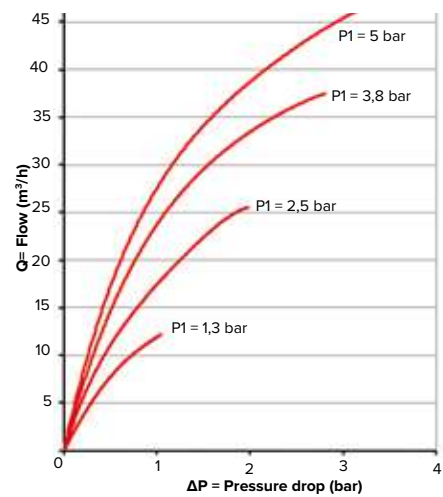
Flash back arrestors must be present on regulators/gas outlets for acetylene by regulations in many countries. In some also required for oxygen. Sever accidents are reported frequently due to disrespects of safety.



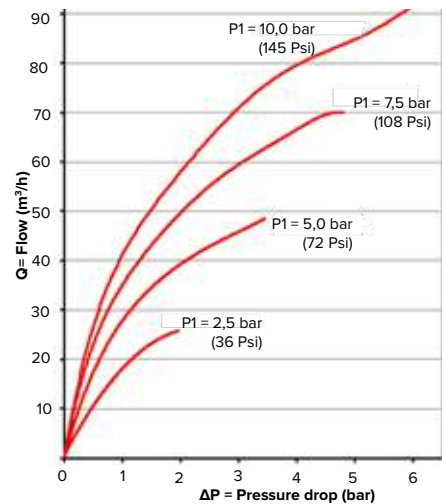
CONVERSION COEFFICIENT			
OXYGEN		HYDROGEN	
Gas	O <sub>2</sub>	H <sub>2</sub>	C <sub>2</sub> H <sub>2</sub>
Coefficient	× 0,95	× 3,75	× 1,04
PROPANE		METHANE	
Gas	C <sub>3</sub> H <sub>8</sub>	CH <sub>4</sub>	C <sub>2</sub> H <sub>4</sub>
Coefficient	× 0,8	× 1,33	× 1,02

FLOW CHART

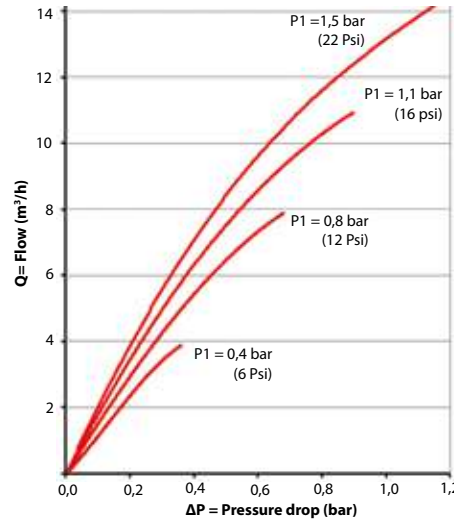
FUEL GAS



OXYGEN



ACETYLENE





# SAFETY DEVICES FOR REGULATORS

## SAFE-GUARD-3

The new SAFE-GUARD-3 for regulator mounting contains a host of new upgrades to performance, filtration, Instructions, and product marking. Complies fully with ISO 5175-1.

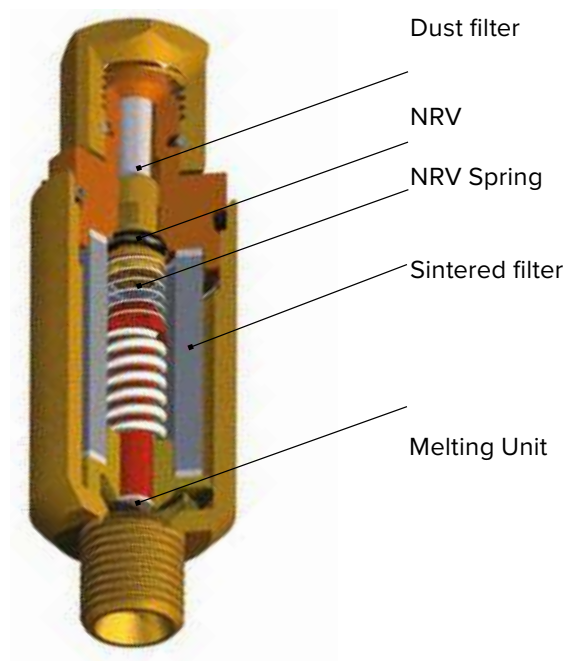
### FEATURES / ADVANTAGES / BENEFITS

- Flame arresting element (FA)
- Non return valve (NV)
- Temperature sensitive cut off valve (TV)
- Dust filter
- Gas service; Oxygen (O) 25 bar, acetylene (A) 1.5 bar, hydrogen (H) 3,5 bar, propane (P) and methane (M) 5bar.



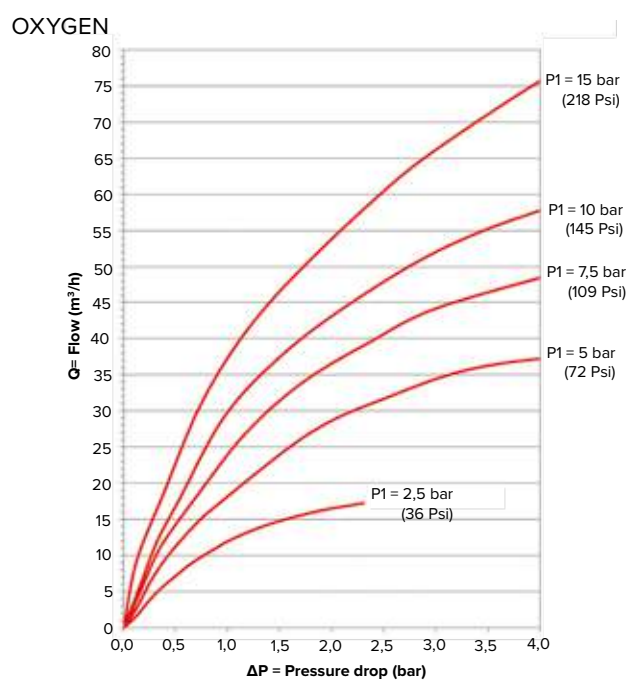
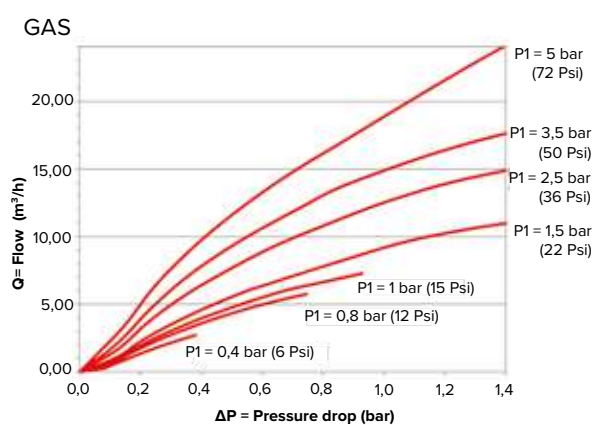


## INTERNAL SAFETY DEVICES



CONVERSION COEFFICIENT			
	OXYGEN	HYDROGEN	ACETYLENE
Gas	$O_2$	$H_2$	$C_2H_2$
Coefficient	$\times 0,95$	$\times 3,75$	$\times 1,04$
	PROPANE	METHANE	ETHYLENE
Gas	$C_3H_8$	$CH_4$	$C_2H_4$
Coefficient	$\times 0,8$	$\times 1,33$	$\times 1,02$

## FLOW CHART



# SAFETY DEVICES FOR TORCHES

## SAFE-GUARD-2

The GCE SAFE-GUARD-2 range of basic flashback arrestors are available for connecting to regulators, hose lines and to torches.

Max Manufactured to ISO 5175 -1 and designed to prevent flashbacks in oxy/fuel systems, they includes the safety features of sintered flame arresting element (FA) to quench flashback plus non return valve (NV) to prevent reverse flow of gases.

### FEATURES / ADVANTAGES / BENEFITS

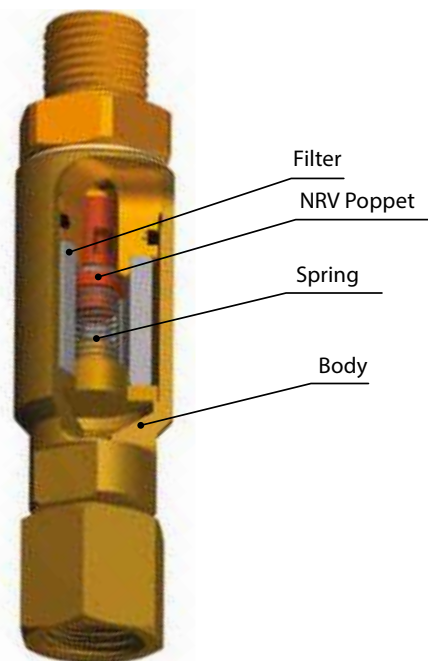
- Flame arresting element (FA)
- Non return valve (NV)

#### FOUR MODELS ARE AVAILABLE FOR CONNECTION TO :

- regulator (model RP),
- hose line to hose line (model TT),
- torch to hose line (model TF)
- torch threaded inlet/outlet (model FF).
- Gas service; Oxygen (O) 10 bar, acetylene (A) 1.5 bar and hydrogen (H), propane (P), methane (M) 5bar.



### INTERNAL SAFETY DEVICES



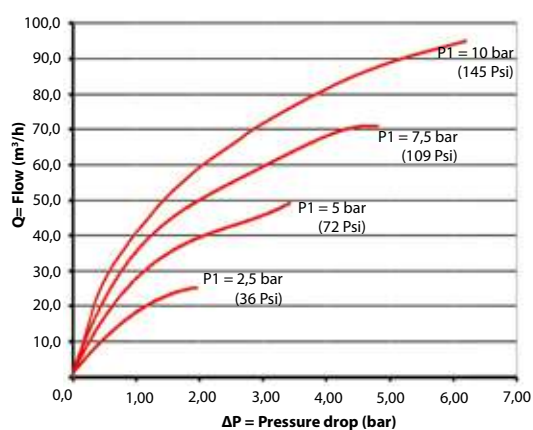
#### GAS OPTIONS AND SERVICE PRESSURE

<b>Right Hand</b>	
Oxygen	10 bar
<b>Left Hand</b>	
Acetylene	1,5 bar
Hydrogen	5 bar
Propane	5 bar
Hydrogen	5 bar
Methane	5 bar
Natural Gas	5 bar
MPS	5 bar
MAPP	5 bar

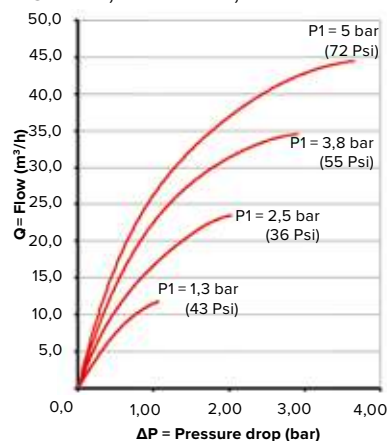
CONVERSION COEFFICIENT			
OXYGEN		HYDROGEN	
Gas	$O_2$	$H_2$	$C_2H_2$
Coefficient	$\times 0,95$	$\times 3,75$	$\times 1,04$
PROPANE		METHANE	
Gas	$C_3H_8$	$CH_4$	$C_2H_4$
Coefficient	$\times 0,8$	$\times 1,33$	$\times 1,02$

## FLOW CHART - SAFE-GUARD-2

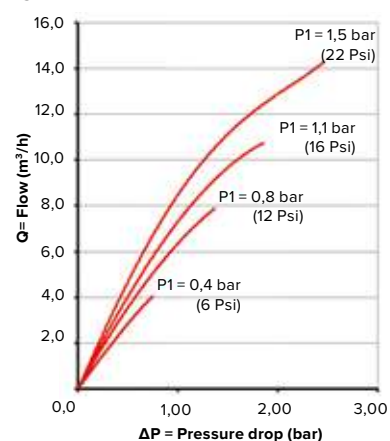
OXYGEN



PROPANE, METHANE, ETHYLENE



ACETYLENE



## SAFETY DEVICES FOR TORCHES

# SAFE-GUARD-1

The GCE SAFEGUARD1 is a non-return valve that prevents reverse flow of gases back into a hose. They are manufactured to our own approved design and the unique method of assembly eliminates the use of soldered or bonded joints. They are suitable to be used with Oxygen, Acetylene, Propane or Natural Gas and operate effectively on either nozzle mix or injector type torches.

Max service pressure is 16 bar within a temperature range of -30°C to +50°C. The design is compact, not bigger than an ordinary hose nipple. Still pressure losses involved are insignificant and the set working pressure therefore stay unchanged. GCE SAFEGUARD is manufactured in accordance with European standard ISO 5175-2.

GCE recommends that the GCE SAFEGUARD1 always are mounted on the torch inlet for both oxygen and fuel gas. Furthermore GCE recommend to check the function of the nonreturnvalve as a minimum every six month.



*Safe-Guard -1 - without nut*

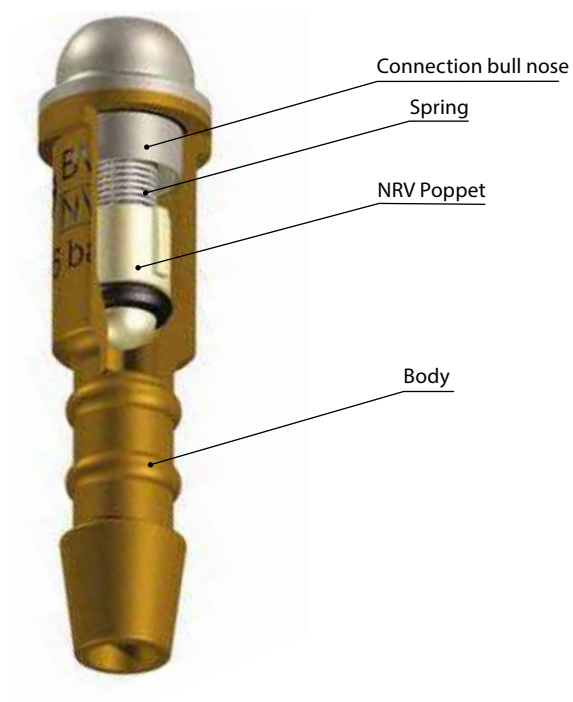


*GCE Safe-Guard -1 / BV 12 (Including Nut)*



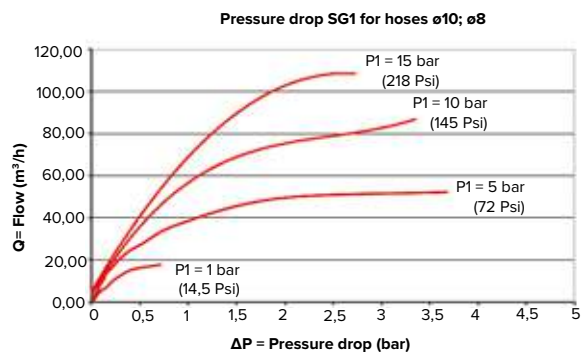
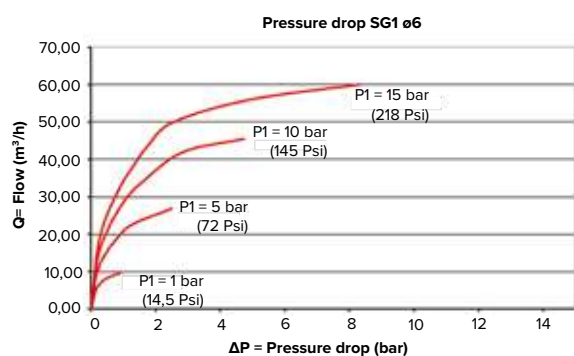
*Safe-Guard -1 - threaded both ends*

## INTERNAL SAFETY DEVICES



CONVERSION COEFFICIENT			
OXYGEN		HYDROGEN	
Gas	$O_2$	$H_2$	$C_2H_2$
Coefficient	× 0,95	× 3,75	× 1,04
PROPANE		METHANE	
Gas	$C_3H_8$	$CH_4$	$C_2H_4$
Coefficient	× 0,8	× 1,33	× 1,02

## FLOW CHART





## QUICK COUPLINGS IN ACCORDANCE WITH EN561/ISO7289

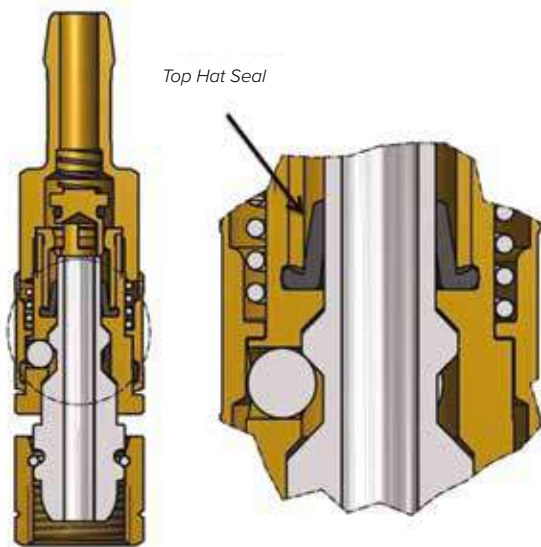
# QUICK COUPLINGS

GCE offers a range of Quick Couplings suitable for easy and quick connection to regulators, cutting & welding torches and gas hoses.

They are manufactured in accordance with EN561/ISO7289 standard. The couplings are made of brass and the hose pins made of stainless steel. The couplings are color coded depending on which gas they are used for and available for oxygen, fuel and inert gases.

### FEATURES / ADVANTAGES / BENEFITS

- Robust design - For heavy duty usage
- Colour coding - according to gas type
- Pull design - Easy connection without accidental disconnection
- Stainless Steel Coupling Pin - Longer life
- Gas cut-o - Automatically cut o gas ow when disconnected
- To Hat Seal - gives an excellent sealing without any risks for leakage.



ISO Connector



ISO Coupling Pin



ISO Coupling Threaded



Quick Coupler  
QC010



Quick Coupler  
QC020



QUICK COUPLER  
QC030

## DESCRIPTION



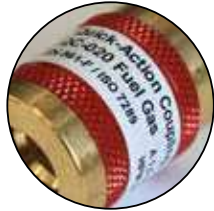
Quick connection according to EN561 ISO 7289.



Standard hose connection according to EN 560.



Stainless steel Coupling pin with colour coding by O-ring for better recognizing. According to ISO 7289.



Color coded sleeve for easy gas identification.



Standard hose connection according to EN 560. Marking of thread dimension for easy identification.



Hose nipples design according to EN 1256 available for most common sizes of hoses.

## NEW TYPE OF MOUNTING



1. Coupling pin put into the Quick connector.



1. Pull the "blue" sleeve of the Quick connector and insert the coupling pin into the Quick connector.

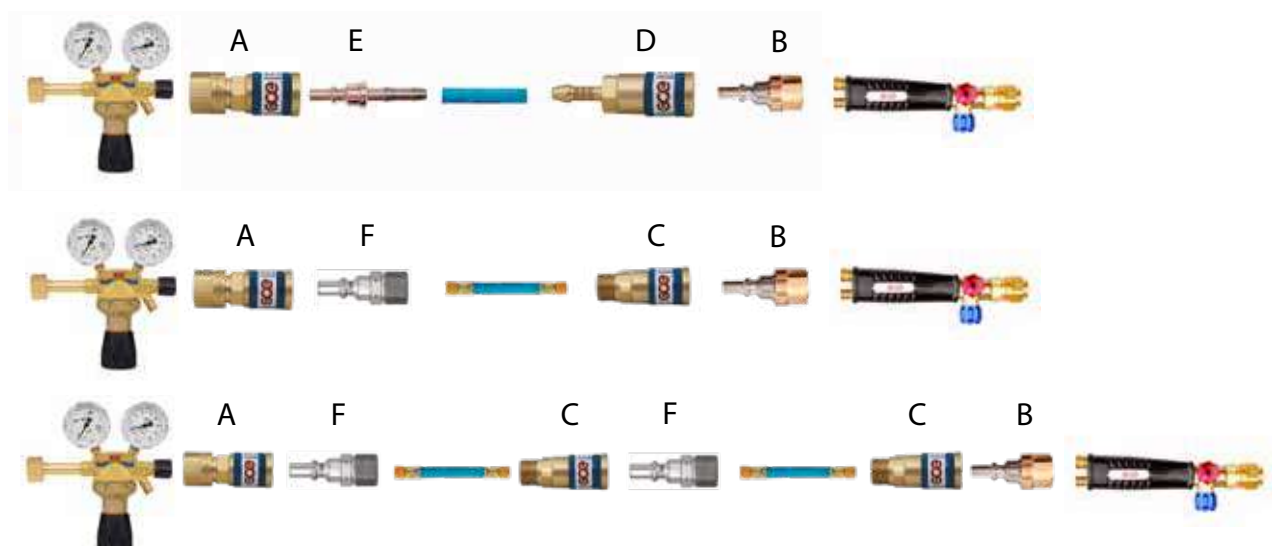


1. Mounting is finished. O-ring is visible.

## COMBINATIONS OF CONNECTIONS

The GCE range of quick couplings has several application possibilities. The type QC-010 is developed special for connection to regulators whereas the others can be used in connections between hoses and hoses to torches.

- › A Quick connector Type QC-010
- › B Coupling nut
- › C Quick connector Type QC-020
- › D Quick connector Type QC-030
- › E Coupling pin - hose nipple
- › F Coupling pin - thread





## PROPANE EQUIPMENT

(UNIVERSAL, EUROMAT, LOMAT, REGULATORS,  
HOSES)



# AIR PROPANE EQUIPMENT

## UNIVERSAL

Ideal for plumbing, heating, and ventilation trades, the GCE air propane shanks are available in two designs where one is equipped with an adjustable pilot flame. Spot/turbo (copper pipe)/special burners connect directly to the shank for all plumbing applications. Heating heads are connected via stainless tubes for larger heating jobs such as road working/roofing/bitumen heating.

### SHANK UNIVERSAL



Combined shut-off valve and adjusting knob.



With lever and adjustable pilot flame

Type	Gas	Working pressure (bar)	Consumption (kg/h)	Lenght (mm)	Weight (kg)	Outlet connection	Inlet connection
Shank with Lever	P, PB	Up to 4,0 bar	12 kg/h	195	0,36	M 14 x 1	G 3/8" LH
Shank with Knob	P, PB	Up to 4,0 bar	12 kg/h	195	0,39	M 14 x 1	G 3/8" LH

### SOLDERING TORCH B UNIVERSAL



Type	Gas	Working pressure (bar)	Consumption (g/h)	Output (kW)	Lenght (mm)	Weight (kg)	Connection
B 3	P, PB	1,0 - 2,5	30 - 39	0,39-0,50	120	0,09	M 14 x 1
B 5	P, PB	1,0 - 1,5	54 - 66	0,69-0,85	120	0,09	M 14 x 1
B 7	P, PB	1,0 - 1,5	162 - 210	2,08-2,70	138	0,11	M 14 x 1

### BRAZING TORCH TURBO UNIVERSAL



Type	Gas	Working pressure (bar)	Consumption (g/h)	Output (kW)	Lenght (mm)	Weight (kg)	Connection
TURBO Ø12	P, PB	1,5 - 2,5	63 - 112	0,81 - 1,44	155	0,131	M 14 x 1
TURBO Ø14	P, PB	1,5 - 2,5	210 - 338	2,70 - 4,35	178	0,148	M 14 x 1
TURBO Ø17	P, PB	1,5 - 2,5	272 - 384	3,50 - 4,94	184	0,168	M 14 x 1
TURBO Ø20	P, PB	1,5 - 2,5	432 - 532	5,56 - 6,85	210	0,228	M 14 x 1



## NECK TUBE UNIVERSAL



Lenght (mm)	Weight (kg)	Schank Connection	Torch Connection
75	0,083	M 14 x 1	M 20 x 1
150	0,113	M 14 x 1	M 20 x 1
220	0,140	M 14 x 1	M 20 x 1
350	0,190	M 14 x 1	M 20 x 1
600	0,288	M 14 x 1	M 20 x 1
750	0,346	M 14 x 1	M 20 x 1
1000	0,443	M 14 x 1	M 20 x 1

## HEATING TORCH H UNIVERSAL



Type	Gas	Working pressure (bar)	Consumption (g/h)	Output (kw)	Lenght (mm)	Weight (kg)	Connection
H Ø30	P, PB	1,0 - 2,0	664 - 1056	8,55 - 13,59	88	0,115	M 20 x 1
H Ø40	P, PB	1,0 - 2,0	1200 - 1902	15,44 - 24,48	95	0,210	M 20 x 1
H Ø50	P, PB	1,5 - 4,0	3780 - 7590	48,68 - 97,69	115	0,298	M 20 x 1
H Ø60	P,PB	1,5 - 4,0	5030 - 9744	64,74 - 125,41	125	0,338	M 20 x 1
H Ø80	P,PB	1,5 - 4,0	5650 - 10570	72,72 - 136,04	155	0,628	M 20 x 1

## FORK PIPE UNIVERSAL



No. of Outlets	Weight (kg)	Widht (mm)	Connection
2	0, 140	150	M 20 x 1
4	0, 285	450	M 20 x 1

## SUPPORT UNIVERSAL



Allows hot heating torches to be rested safely on a horizontal surface. Assembled onto the neck tube of the torch.

## SETS UNIVERSAL PROPALINE



*Propaline 1*

Shank with a gas saver, heating torch H50, neck tube 350 mm, torch AT, hose nipple, nut G 3/8" LH.



*Propaline 2*

Shank with a gas saver, heating torch H40 and H60, support H, neck tube 350 mm and 600 mm, hose nipple, nut G 3/8" LH.



*Propaline 3*

Shank with a gas saver, brazing turbo torch Ø20, Ø17, Ø14, hose nipple, nut G 3/8" LH.



*Propaline 4*

Shank with a gas saver, heating torch H20, neck tube 600 mm, hose nipple, nut G 3/8" LH.

# PROPANE EQUIPMENT

## EUROMAT

The Euromat range with its modern design has is comparable to the Universal range has some further multifunctional features. The system with the „CLICK“ has advantages in handling and igniting the flame. The plug-in / snap-in connection allows the assembly of all inserts without using any tools. For additional convenience, the combination of piezo-automatic ignition and lockable moment lever provides an ergonomic design which allows precise work with maximum efficiency.

### FEATURES

- Use for propane application such as brazing soldering, shrinking and heating
- Based on the Bunsen principle with.
- Ergonomic plastic handle
- Piezo ignition for single hand operation
- Tool free insert plug in mounting
- Rotating inlet connection
- Working pressure from 0,5 to 4,0 bar



Gas	Lenght (mm)	Weight (kg)	Connection
P, PB	180	0,331	G 3/8 LH



Brazing torch

Type	Gas	Working pressure (bar)	Consumption PB (g/h)	Output (kW)	Lenght (mm)	Weight (kg)
TT TURBO Ø13	P, PB	1,5 - 2,0	110	1,43	180	0,119
TT TURBO Ø15	P, PB	1,5 - 2,0	180	2,32	180	0,130
TT TURBO Ø17	P, PB	1,5 - 2,0	320	4,12	185	0,132
TT TURBO Ø19	P, PB	1,5 - 2,0	415	5,34	185	0,140
TT TURBO Ø22	P, PB	1,5 - 2,0	510	6,57	190	0,156



Soldering torch PT Euromat

Type	Gas	Working pressure (bar)	Consumption PB (g/h)	Output (kW)	Lenght (mm)	Weight (kg)
PT 3	P, PB	1,5 - 2,0	41	0,53	180	0,140
PT 5	P, PB	1,5 - 2,0	120	1,55	180	0,146
PT 7	P, PB	1,5 - 2,0	222	2,86	185	0,150
PT 9	P, PB	1,5 - 2,0	380	4,89	185	0,160
PT 11	P, PB	1,5 - 2,0	511	6,58	190	0,178



Schrink torch Euromat

Type	Gas	Working pressure (bar)	Consumption PB (g/h)	Output (kW)	Lenght (mm)	Weight (kg)
PT 3	P, PB	1,5 - 2,0	41	0,53	180	0,140
PT 5	P, PB	1,5 - 2,0	120	1,55	180	0,146



Hot air shrinkage torch Euromat multi

Type	Gas	Working pressure (bar)	Consumption PB (g/h)	Output (kW)	Lenght (mm)	Weight (kg)
PT 3	P, PB	1,5 - 2,0	150	6,95	200	0,350

# PROPANE EQUIPMENT

## LOMAT PIEZO

The Lomat piezo product range is our latest innovative generation of propane equipment. The piezo functionality and the ergonomic design of both shanks and attachments set the Lomat range in front of development. A reinforced piezo ignition of 12000 volts set a new standard for propane equipment. The Lomat system covers all areas of application of the propane brazing and heating technology and offer piezo ignition for all burners.

### FEATURES

- Use for propane application such as brazing soldering, shrinking and heating
- Based on the Bunsen principle with.
- Ergonomic plastic handle
- Piezo ignition for single hand operation
- Tool free insert plug in mounting
- Rotating inlet connection
- Working pressure from 0,5 to 4,0 bar

### SHANK LOMAT PIEZO



Type	Working Pressure	Capacity	Connection
SHANK	max. 4 bar	12 kg/h	G 3/8 LH



Soldering torch Lomat Piezo

Type (mm ø)	Consumption (kg/h at 2,0 bar )	Output (kW/h)
5	0,120	1,55
7	0,320	2,86



Brazing turbo torch Lomat piezo

Type (mm ø)	Consumption (kg/h at 2,0 bar )	Output (kW/h)
15	0,180	2,32
17	0,320	4,12
22	0,510	6,57



Shrinking torch Lomat Piezo

Type (mm Ø)	Consumption (kg/h at 1,5 bar )	Output (kW/h)
22	0,424	5,45
30	0,985	12,68



Hot air shrinkage torch Lomat Piezo

Type	Consumption (kg/h at 1,5 bar )	Output (kW/h)
Hot Air Shrinkage Torch 30	0,180 kg/h	2,32



Soldering iron torch Lomat Piezo

Type	Consumption (kg/h at 1,5 bar )	Output (kW/h)
Brazing Torch Lomat Piezo 22	0,424	5,45
Soldering iron Lomat Piezo 350 g	0,985	12,68



Heating torch Lomat Piezo

Head-Ø (mm)	Lenght (mm)	Consumption (at 4,0 bar)	Output kW/h bei 4,0bar
50	ca. 500	7,6 kg/h	97,6
60	ca. 750	9,8 kg/h	126,2
60	ca. 900	9,8 kg/h	126,2



# PROPANE EQUIPMENT

## REGULATORS

According to existing regulations, propane regulators must be equipped with hose break valves. The purpose of the pressure regulators is to secure correct pressure at each individual job. The GCE Propaline regulators are of high quality, robust, and reliable. They are made of brass and stainless steel according to DIN-regulations, and they are approved according to DIN DVWG.

### FEATURES

- Fuel gas propane
- Operating pressure
  - › variable: 0.5 bar - 4 bar
  - › fixed: 1.5 bar, 2.5 bar, 4 bar
- Capacity: max. 3, 4, 5, 10, 12, and 16 kg / h
- Inlet thread: W 21.8 × 1/14 left, G 3/8" LH
- Outlet thread: G 3/8" LH
- Hose breakage protection:
  - integrated,
  - mountable
- Pressure indication: with and without manometer.

### PRESSURE REGULATOR PROPANE BUTANE



### REGULATOR PROPANE BUTANE FIX



Type	Gas	Working Pressure (bar)	Capacity (kg/h)	Outlet Connection (mm)	Inlet Connection
Regulator with integrated hose break valve	P, PB	Fixed 4 bar	Max 14	W 21,8 × 1/14 LG	G 3/8 LH
Regulator with integrated hose break valve	P, PB	Fixed 1,5 bar	Max 14	W 21,8 × 1/14 LG	G 3/8 LH

### REGULATOR PROPANE BUTANE WITH GAUGE (0,5 - 4 BAR)



Type	Gas	Working Pressure (bar)	Capacity (kg/h)	Outlet Connection (mm)	Inlet Connection
Regulator with integrated hose break valve	P, PB	0,5-4	Max 14	W 21,8 × 1/14 LG	G 3/8 LH

## PRESSURE REGULATOR PROPANE BUTANE

Type	Inlet Pressure (bar)	Outlet Pressure (mbar)	Nominal flowrate (kg/h)	Inlet Connection	Hose Nipple Ø (mm)
RTP 21 MODEL 188	1,8 - 8,0	30	1,5	W 21 21,8 × 1/14" LH	8
RTP 3 MODEL 323	1,8 - 8,0	30	2,5	W 21,8 × 1/14" LH	8
RTP 4 MODEL 324	1,8 - 8,0	50	2,5	W 21,8 × 1/14" LH	8



RTP 21



RTP 3



RTP 4



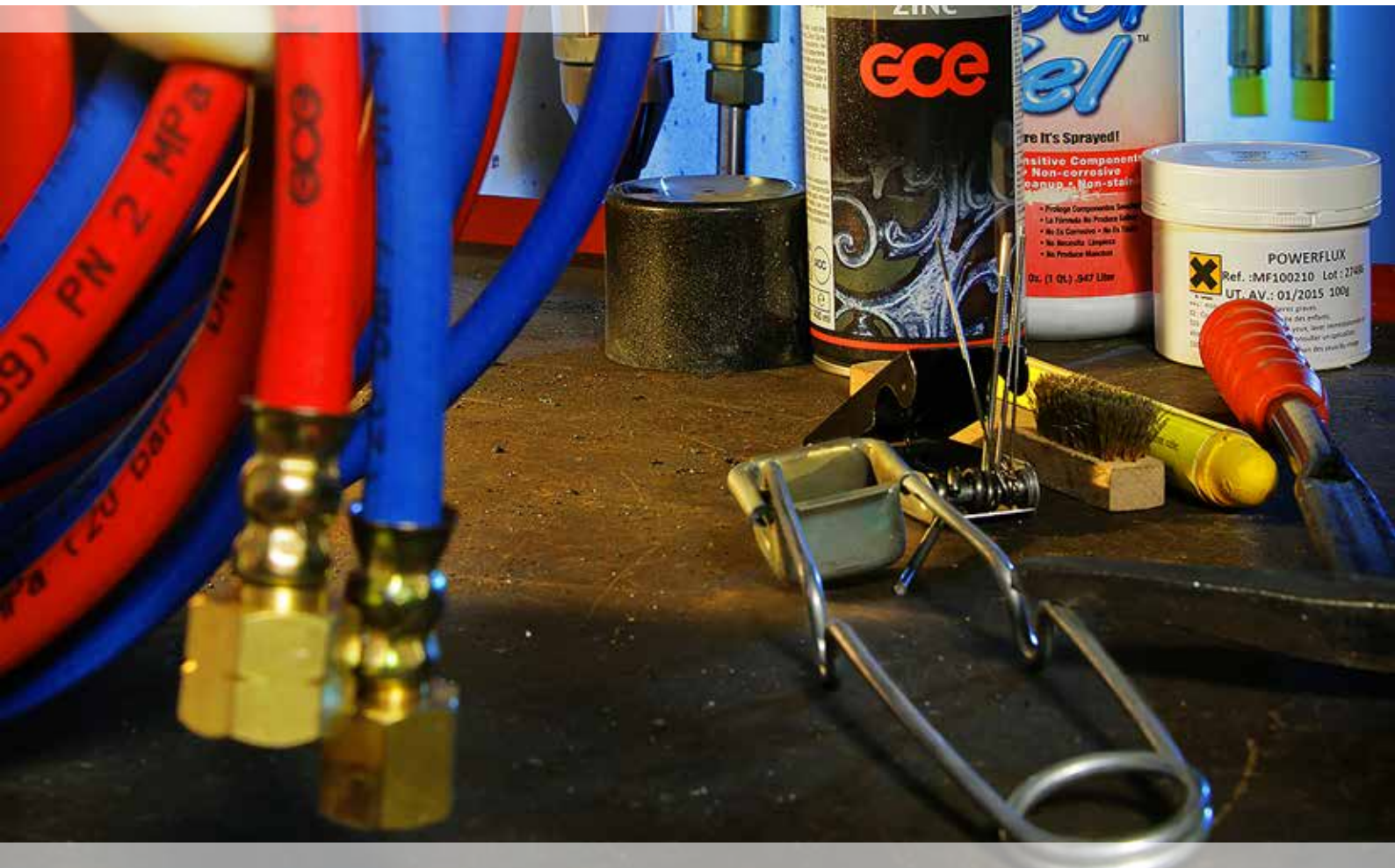


ARC AND PLASMA

WELDING CONSUMABLES

RUBBER HOSES AND ACCESSORIES

PERSONAL PROTECTIVE EQUIPMENT





# DC INVERTER MMA / LIFT TIG WELDING MACHINE

## ARCONTROL DIGITAL

ARCONTROL are MMA arc welding machines adopting the latest pulse width modulation (PWM) technology and the insulated gate bipolar transistor (IGBT) power module. Suitable for stick-electrode welding and Tig welding. The high performance and duty cycle make this welding machines suitable also for professionals. Easy and accurate amperage control by means of digital display. Extremely low weight, very small size, portable. Supplied in a hard case and equipped with electrode holder, earth clamp, cables and connectors.



EN 60974-1  
EN 60974-10



### FEATURES / ADVANTAGES / BENEFITS

#### EXCELLENT PERFORMANCES

- The constant current output makes the welding arc more stable.
- Fast and dynamic response speed reduces the impact from the arc length fluctuation to the current.
- Accurate stepless current adjustment and pre-setting function.

#### GENERATOR FRIENDLY

Designed to work with diesel generators and to avoid failures due to voltage spikes.

#### AUTOMATIC PROTECTION

Equipped with temperature, voltage and current sensors for high protection from under voltage, over current, overheating.

#### EXTRA FUNCTIONS.

Hot Start, Anti-sticking, Arc Force

#### DIGITAL DISPLAY

Variable amperage control with digital meter, for a welding current instant display.

#### GENERAL APPLICATIONS

Suitable for MMA arc welding and TIG lift welding.

#### 440V TESTED IN PRODUCTION



TECHNICAL DATA	ARCONTROL 135	ARCONTROL 160	ARCONTROL 200
Welding Current Range (A)	10-135	10-160	10-200
	25%-135 A	30% -160A	30%-200A
Duty Cycle (40°C 10 min) at max A	60%-112 A	60% -135 A	100%-110A
	100% -105A	100%-120 A	
Electrode Diameter	ø2.5ø3.2	ø2.5ø3.2ø4.0	ø2.5ø3.2ø4.0
Electrode Type	6013,7018,etc.	6013,7018,etc.	6013,7018,etc.
Net Weight (Kg)	3.55 Kg	4.5 Kg	4.6 Kg
Dimensions (mm)	325×114×208	325×114×208	330×135×250



# DC INVERTER PLASMA CUTTING MACHINE

## GLADIUS

**GLADIUS** machines are a new generation of a portable equipment for manual plasma cutting. They are equipped with inverter technology and pilot arc controller that ensure an optimal current adjustment, excellent performance and cutting quality with increased capability and speed. **GLADIUS** machines are combined with a high-quality cutting torch (without HF) specifically tested to obtain the maximum performance. Two versions to meet your needs : with or without air compressor.



EN 60974-1  
EN 60974-10



### FEATURES / ADVANTAGES / BENEFITS

#### EXCELLENT PERFORMANCES

Increases cutting capabilities and speed.  
Extends tip's life. Ideal for grid cutting.

#### AUTOMATIC PROTECTIONS

Equipped with sensors to protect and alarm for overheating and over-current.

#### LIGHTWEIGHT

Extremely low weight and versatility.

#### AIR FILTERING

Air filtering with automatic water drainage model without compressor.

#### EQUIPPED WITH

Earth Clamp (with cable)  
Hand Cutting Torch SOLARIS M60 (4 m)  
with Central connection EURO type



**WITH OR WITHOUT  
AIR COMPRESSOR**



Central connection EURO type

TECHNICAL DATA	GLADIUS 40	GLADIUS 40 COMPR
Duty Cycle (40°C 10 min)	60% 40A	60% 40A
Severance Cut (mm)	≤20 mm (Carbon Steel)	≤14 mm (Carbon Steel)
Production Cut (mm)	≤20 mm (Carbon Steel)	≤12 mm (Carbon Steel)
Net Weight (Kg)	5.7 Kg	18 Kg
Use with Power Generator	YES	NO

# PLASMA HAND CUTTING

## SOLARIS

The **Solaris** torches are the new torches for Hand Plasma Cutting by GCE with excellent performance. High cutting speed and high quality of cut make these torches very efficient. Ergonomic handle and central connections provide ease of use and practicability. Suitable for the most demanding users. Excellent value for money.

CE  
EN 60974-7



### FEATURES / ADVANTAGES / BENEFITS

- Ergonomic handle
- Trigger protection against accidental starting
- Strong and ergonomic Central connection EURO type
- Ignition with high frequency
- Consumables fully interchangeable with torches of other brands
- Accessories included



### IGNITION WITH HIGH FREQUENCY:

- Torch SOLARIS B
- Torch SOLARIS F

### IGNITION WITHOUT HIGH FREQUENCY:

- Torch SOLARIS M



Ergonomic handle



Trigger protection



Central connection EURO type



Accessories included

## MIG WELDING

# MIGSTAR PRO

The new powerful generation of GCE MIG torches feature extraordinary technical characteristics, advanced technology and an ergonomic anti-slide shank. They're specifically designed to enable the users to a comfortable and practice operations. Available in two variants: Air cooled and water cooled. Excellent value for money.

CE  
EN 60974-7



### FEATURES / ADVANTAGES / BENEFITS

- Optimum cooling (Air or Water)
- Ergonomic handle with anti-slide rubber inserts.
- Ball joint at the handle improving the handling
- Push button feature to protect against accidental starting
- Strong and ergonomic connection EURO type
- Ball joint at the connection extending the cables
- Contact tip, gas nozzle and liner included. lifetime and governing the welding wire feeder.
- Textile covers for water hoses offering maximum protection.
- Non detachable plastic caps for water hoses.
- Contact tip, gas nozzle and liner included.

**WATER COOLED**  
**AIR COOLED**



*Rotating rear connection  
to govern welding wire feeder*



*Push button feature to protect  
against accidental starting*



*Strong and ergonomic  
connection EURO type*



*Ball joint at the handle  
improving the handling*



*Anti-slip rubber  
insert on the handle*

## TIG WELDING

**TIGSTAR PRO**

The new generation of GCE TIG Torches with extraordinary technical characteristics at a very good PRICE! They're provided with a very slim and ergonomic shank, a ball joint at the handle and an ultra soft leather protection for cable (n/a on V version) making them fully handy. Available in two variants: Air cooled and water cooled. The spare parts are fully compatible with standard market Brenner.



EN 60974-7

**FEATURES / ADVANTAGES / BENEFITS**

- Optimum cooling (Air or Water)
- Very slim and ergonomic handle.
- Ball joint at the handle improving the handling
- Standard trigger version or knob version (model V)
- Plug TIG included (G1/4 - G3/8 - quick connection)
- Soft leather cover for cable (n/a on V version)
- Provided with a spare parts set (ceramic nozzle, collet body, collet, back cup long)

**THE ONLY ONES WITH LEATHER CLAD CABLE!**

- The first 75cm of torch cable nearest to operator are clad in soft leather (n/a on Brenner with knob control valve). This gives great flexibility of movement and very good protection against spatter.

**WATER COOLED  
AIR COOLED****MAXIMUM EASE OF USE!**

All TIGSTAR torches are equipped with connections for all possible needs (1/4", 3/8" or quick).

V version (with knob valve)

## TIG WELDING

## TUNGSTEN ELECTRODES

A complete range of tungsten electrodes with excellent performance and reliability, tested by thousands of operators during many years.

ISO 6848

## ELECTRODES TYPES

- GREEN - WP(W20) - Tungsten Pure
- RED - WTh20 (WT20) - Tungsten + Thorium 2%
- GREY - WCe20 (WC20) - Tungsten + CERIUM 2%
- GOLD - WLa15 (WL15) - Tungsten + Lanthanum 1,5%
- BLUE - WLa20 (WL20) Tungsten + Lanthanum 2%



COLOR	TYPE	CURRENT	FOR WELDING	ARC IGNITION	ARC STABILITY	CURRENT CARRYING CAPACITY	LIFETIME
GREEN	Pure	AC	Aluminium, Magnesium, Nickel and their alloys	Medium	Good	Low	Low
RED	Thoriated ThO2 - 2%	DC	Carbon steel, Stainless steel, Nickel alloys and Titanium	Excellent	Excellent	Excellent	Very good
GREY	Ceriated CeO2 - 2%	AC & DC (low amp)	Carbon steel, Stainless steel, Nickel alloys and Titanium	Very good	Very good	Very good	Very good
GOLD	Lanthanated La2O3 - 1,5%	AC & DC	Carbon steel, Stainless steel, Titanium, Aluminium and its alloys	Excellent	Excellent	Excellent	Very good
BLUE	Lanthanated La2O3 - 2%	AC & DC	Carbon steel, Stainless steel, Nickel alloys, Aluminium, Magnesium, Titanium, Cobalt, Copper alloys, etc.	Excellent	Excellent	Excellent	Excellent

## 2% LANTHANUM ELECTRODES (BLUE)

## Excellent performance, no radioactivity.

When choosing a tungsten electrode, arc ignition, stability and lifetime are the criteria to consider. That's why historically the thoriated electrode (RED) is the most commonly used. But despite the content of thorium oxide is very limited, during grinding the user can inhale powders containing radioactive elements. However, despite the very low content of thorium oxide, during grinding the user can inhale thorium powder containing radioactive elements which, although far below the threshold considered to be hazardous, may cause health problems.

Nowadays a non-radioactive electrode better than thoriated already exists. It is the BLUE electrode with lanthanum 2%. Lanthanum is the best electrode. It can guarantee an excellent arc ignition, re-ignition and arc stability by maintaining a perfect tip geometry for longer. It has a longer lifetime and can be used both with AC and DC. It doesn't contain any radioactive element.

- **Can be used with alternating or direct current (AC and DC).**
- **Excellent arc ignition.**
- **Best arc stability thanks to a lower deformation of the electrode tip.**
- **Longer lifetime.**
- **No radioactivity**



## MMA WELDING

# ELECTRODE HOLDERS AND EARTH CLAMPS

The GCE range of ELECTRODE HOLDERS and EARTH CLAMPS includes a large selection of models for the most exigent users. The selection of electrode holders includes models with different designs and insulations. They are all manufactured with the best material with attention to details. Always the best handling and safety. The earth clamps, made from plated steel or cast brass body, are all designed to be strong and to offer always the best conductivity minimizing the electric discharges. Accurate design of point of contact and cable fixing in different position depending on the user's need. A complete offer, fully in compliance with EN standards, for occasional and professional users, for all the uses up to heavy duty applications.

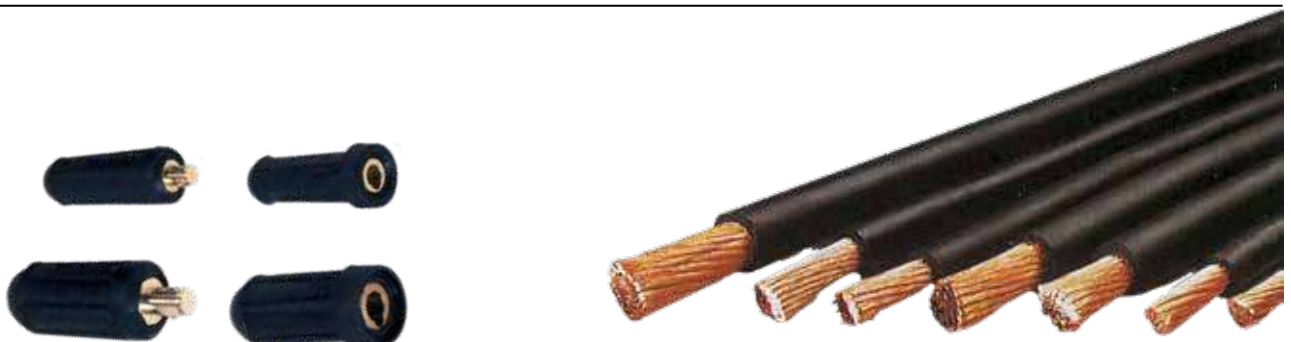


EN 60974-11  
EN 60974-13



# WELDING CABLES AND CONNECTORS

GCE Arc Welding Cables are superior cables made with copper conductor, insulated with rubber, flame retardant and oil and chemical resistant, conform to 2006/95/EC (LVD). All these cables are subjected to accurate controls to guarantee the best conductivity. GCE cable connections are DINSE style connectors. Brass body and insulation in rubber (for cables) or heat resistant resin (for machine).



## MMA WELDING

## STICK ELECTRODES

GCE has selected a range of the most popular electrodes types, widely used in most applications, with the goal to offer excellent weldability without compromising the mechanical properties of the weld beads.

APPLICATION	PRODUCT	FEATURE
Carbon Steel Welding	ARC MAGIC S	Universal
	DIANE TS	Enhanced mechanical characteristics
	DIANE BT	Special for repairing
Difficult weld Steel Welding	INOX 29.10R	Multipurpose, high security
Stainless Steel Welding	INOX RR316LC	Stainless steel 316L
Dissimilar Metals Welding	INOX 29.10R	Multipurpose, high security
Cast Iron Welding	FUN No1	Lamellar cast iron
Hardfacing	DIROK RB 600	Universal ( 55-60 HRC)



UN- ALLOYED STEEL  
HIGH ALLOYED STEEL  
CAST IRON  
HARDFACING

## BRAZING

## FILLER METALS

GCE offers a wide variety of brazing and soldering solutions, with the goal of always offering high quality alloys. All our alloys are Cadmium Free and are carefully designed to offer great mechanical properties. Our fluxes are accurately selected to have the best performance and low hazards for operators and environment.

COPPER-PHOSPHORUS ALLOYS

SILVER ALLOYS

BRASS ALLOYS

MILD STEEL ALLOYS

SOLDERING TIN



## GAS HOSES

# RUBBER HOSES

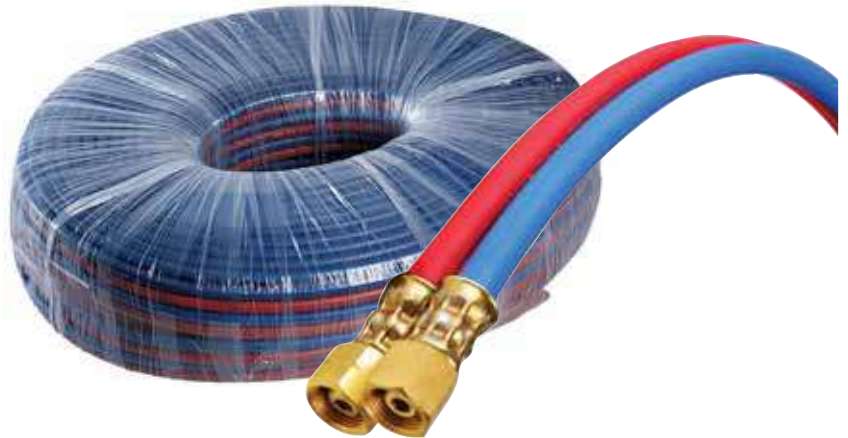
GCE offers a wide range of rubber welding hoses conform to standard ISO 3821.

Rubber hoses are offered in bulk or ready to use, already fitted with the most used connections and equipped with the non-return valve for user's safety. Our choice includes single hoses, twins or coupled, for Oxugen, Acetylene, Propane and inert gases.

ISO 3821

## FEATURES / ADVANTAGES / BENEFITS

- High Quality rubber
- Inner tube resistant to welding gas
- Reinforcement in high tensile synthetic textile
- Outer tube resistant to abraision and weather
- Working pressure 20 bar



# GAS WELDING HOSE REELS

CE



The **HOSE REELS OSV** is a professional device to distribute the welding gases (oxygen, acetylene, propane) to the workplace without leaving the hoses around the workshop.

The hose reel is equipped with an **AUTOMATIC REWIND** system which allows an easy recall of the hose.

Supplied **WITHOUT HOSE**, it is equipped with G3/8M connections and can be combined with fitted hose (sold separately). In addition, it is equipped with nuts and hose nipples for a full compatibility with different hose sizes and gases.

- The hose can be stopped at the desired lenght
- The hot-galvanized steel structure is moulded and coated with electrostatic polyester powder, resistant to UV rays
- The open structure allows an easy assembly and replacement of the hose and the control of the rewinding
- The hose guide can be fixed in 3 different positions allowing the installation in multiple positions.
- Lateral covers to protect the hose connections.

## ACCESSORIES

# APICS LIGHTER

**APICS** is a "stand alone" lighter for oxy/acetylene Brenner for welding cutting and heating. Can also be used for oxy/propane in conjunction with an existing conventional gas economiser.



### FEATURES / ADVANTAGES / BENEFITS

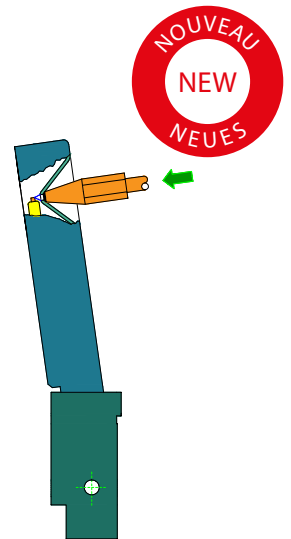
#### PILOT FLAME CAN DEFINITELY BE SWITCHED OFF!

- No naked flames in the workplace.
- No need to light the pilot flame and extinguish every morning and evening.
- No need to adjust gas levels during the day.
- No build up of combustible gases if the pilot flame is accidentally extinguished.
- Through a new patented ignitor system.

#### HANDS FREE (COMPARED TO SPARK LIGHTERS)!

- Simply fix APICS to the work bench, then press with the torch tip to ignite ...
- Maintenance free! Constructed in long lasting stainless steel.
- Apics helps the environment by reducing CO2 emissions (200kg CO2 is estimated emission from a pilot flame economiser).

**TO BE USED  
IN COMBINATION  
WITH GAS SAVER**



## TOOLS

The range of accessories includes a selection of sparkle lighters, mirrors, nozzle cleaners, wire brushes and chipping hammers. All these tools are accurately selected to offer a long service life





# CHEMICALS

## SPRAYS

GCE high quality technical sprays are specifically developed for welding applications. GCE chemicals are designed to be always eco-friendly.

ANTISPATTER SPRAYS AND LIQUID  
GALVANIZING SPRAYS( ZINC, INOX)  
LEAK DETECTORS  
CRACKS DETECTORS  
MULTIFUNCTION



# MARKERS

A selection of markers ( liquid paint, solid paint, soapstone), with different tips and colours to mark many kind of surfaces: rough metals, rusty or dirty, ceramic, glass, wood, etc.  
The range includes also markers for temperature indication.





## PREPARATION OF JOINTS

# BRASOTEK

**BRASOTEK** is an innovative product for the preparation of the joints before brazing. This liquid product allows for a perfect cleaning through chemical reaction without any hazard for the operator. Once applied with the extremely practical marker, **BRASOTEK** develops a protective coating that keeps the pieces clean and deoxidized much longer (up to 2 hours).

BRASOTEK removes completely all the dirt and the oxides from the surfaces to be joined, boosting the penetration of filler metal in depth. It facilitates the preheating by improving heat distribution and helping to prevent burns. It reduces the preparation time because the pieces are processed only once, without using steel wool, abrasive paper or wire brush.



### FEATURES / ADVANTAGES / BENEFITS

- **NON-TOXIC, NON-POLLUTING**
- **REDUCED USE OF FLUXES**
- Significant working time reduction.
- Reduction of risks for the operator.
- Perfect welding of different metals (copper-brass, copper-bronze, copper-inox).
- Cost saving
- Double tips marker or big size marker (22 mm)

For brazing alloys copper-copper, copper-iron, copper-brass, copper-bronze, copper-inox, brass-inox.

Particularly suitable in the sectors of refrigeration, maintenance, installers, etc.



**PATENTED FORMULA**



# AUTODARKENING GOGGLE

# SUPERVISOR

The SUPERVISOR Auto Darkening Goggle is a new generation product for labour protection that ensures safety and the maximum comfort to the worker. The SUPERVISOR Auto Darkening Goggle can work as a standard safety goggle and then automatically change its shade stage to protect your eyes from hazardous lights or harmful rays.

Shades and sensitivity can be adjusted by means of a control panel. Lightweight and simple frame, tight fit, and extra comfort will reduce the pressure on your face throughout the working time. Highly Effective for operations of Grinding, supervision of Arc Welding, Spot Welding, Gas Cutting & Welding, Plasma Cutting, Gouging, etc.



EN 379

## FEATURES / ADVANTAGES / BENEFITS

- Optical Class: 1/1/1/2
- Shade Adjustment # 5/11
- Sensitivity with 5 steps Adjustment
- Lightweight (only 107 g)
- Ultrasoft rubber pad
- Low Battery Alarm
- Auto power off
- Free hands for your operations
- Perfect fit also with hard hat
- Storage case included
- Neck cord, spare batteries and spare protection lens included



## GENERAL APPLICATIONS

Supervision, inspection and control of Cutting & Welding operations.



Storage case



# AUTODARKENING HELMET WITH VENTILATION

## MACH 3 WIND

**Mach 3 Wind** is an integrated protection system which combines the high technology of a LCD filter with digital controls with the advanced Powered Air Purifying Respirator (PAPR) with rechargeable battery. The ventilation system, the connection equipment and the lightweight helmet ensure comfort and ease of use rarely seen before. The new LCD filter **ColorView Infotrack** allows to see the workpiece in colors and to monitor the welding time and environment's temperature.



EN 379  
EN 12941



### FEATURES / ADVANTAGES / BENEFITS

#### THE NEW COLORVIEW OPTICAL TECHNOLOGY

- Stop to the green shades. Now weld in colors !  
The ColorView optical technology lets you see the workpiece in real colors.

#### INFOTRACKSYSTEM

- The InfotrackSystem monitors the welding arc time and detects the workplace temperature.
- Moreover, with clock and alarm.

#### EXTRAORDINARY HEADGEAR

- 5 adjustment points
- Integrated comfort cushion pad

#### ADVANCED RESPIRATOR

- Air flow adjustment (160 or 200 l/min).
- Multiple alarms.
- Easy-to-read control panel for monitoring and control of the device.
- Tough outer case. A barrier to stop debris from entering the unit.



#### TECHNICAL DATA VENTILATION UNIT

Particle filter:	EN 12941 TH2 P SL
Airflow:	160-200 l/min adjustable
Alarms:	Visual, Acoustic, Vibrant
Battery:	10 h use, rechargeable
Odour filter:	Optional
Weight:	PAPR: 1350 g Air Hose: 220 g

#### TECHNICAL DATA LCD FILTER

OPTICAL CLASS:	1/1/1/2 (one of the best on the market)
Viewing Area:	97x60 mm (max comfort)
Sensing:	4 sensors
Reaction time:	0,05 msec
Weld mode:	# 9-13 (MIG/TIG)
Cut mode:	# 5-9 (OXYGAS)
X mode:	# 9-13 (PLASMA and high sensitivity processes)
GRINF mode:	External button

# AUTODARKENING HELMETS

## MACH 3



**Mach 3** is a LCD mask designed to satisfy the most exigent welders. Suitable for TIG, PLASMA and OXYGAS cutting and welding. This helmet is one of the most performant on the market. The new LCD filter **ColorView Infotrack** with digital control allows to see the workpiece in colors and to monitor the welding time and environment's temperature. This mask is equipped the new comfortable headgear.

CE  
EN 379



### SOLAR CELLS + BATTERIES

TECHNICAL DATA	
<b>OPTICAL CLASS:</b>	1/1/1/2 (one of the best on the market)
<b>Viewing Area:</b>	97×60 mm (max comfort)
<b>Sensing:</b>	4 sensors
<b>Reaction time:</b>	0,05msec
<b>WELD mode:</b>	#9-13 (MIG/TIG)
<b>CUT mode:</b>	#5-9 (OXYGAS)
<b>Xmode:</b>	#9-13 (PLASMA and high sensitivity processes)
<b>GRIND mode:</b>	external button



colorView

SEE THE WORKPIECE IN REAL COLORS.

## MACH 2



**Mach 2** is a LCD mask specifically designed for TIG welding. It works with batteries and solar cells. The new LCD filter with **ColorView** optical technology allows to see the workpiece in colors and thanks to the very quick reaction time (0,05m sec) it provides a very high quality performance. This mask is equipped the new headgear with extended nape cushion pad, for optimal comfort.

CE  
EN 379



### SOLAR CELLS + BATTERIES

TECHNICAL DATA	
<b>OPTICAL CLASS:</b>	1/1/1/2 (one of the best on the market)
<b>View Area:</b>	97×47 mm double LCD layer
<b>Sensing:</b>	2 sensors
<b>Reaction time:</b>	0,05 msec
<b>Dark shade:</b>	#9-13 external adjustment
<b>Grinding mode:</b>	internal adjustment disabling sensors



colorView

SEE THE WORKPIECE IN REAL COLORS.

# AUTODARKENING HELMETS

## ECLIPSE 3.s



**Eclipse 3.s** is an extraordinary and professional TIG mask, extra sensitive at an incredible price!  
The new LCD filter has now the variable shade selection 5-9 and 9-13.  
Provided with 4 sensors and an incredibly large view area for a great improvement of working conditions. Very high quality performance.



### SOLAR CELLS + BATTERIES

#### TECHNICAL DATA

<b>OPTICAL CLASS:</b>	1/2/1/1 (one of the best on the market)
<b>Viewing Area:</b>	100x60 mm Extra large
<b>Sensing:</b>	4 sensors
<b>Reaction time:</b>	0,08 msec
<b>WELD mode:</b>	#9-13 (MIG/TIG)
<b>CUT mode:</b>	#5-9 (OXYGAS)
<b>GRIND mode:</b>	yes



## ECLIPSE 2.s



**Eclipse 2.s** is a very reliable mask for MIG/Electrode welding, working only with solar cells (no batteries).  
The new LCD filter has now one of the best optical class on the market and now comes with an enlarged viewing area and the grind function.



### SOLAR CELLS (NO BATTERIES)

#### TECHNICAL DATA

<b>OPTICAL CLASS:</b>	1/1/1/2 (one of the best on the market)
<b>View Area:</b>	96x42mm
<b>Sensing:</b>	2 sensors
<b>Reaction time:</b>	0,1 msec
<b>Dark shade:</b>	#9-13 external adjustment
<b>Grinding mode:</b>	yes





## HEAD PROTECTION

## HELMETS &amp; SHIELDS

GCE's program for labour protection includes a variety of devices for head and face protection. Lightweight helmets in different materials (polycarbonate, fiberglass reinforced or cellulose fiber) to protect the entire head where to mount the lens of desired shade. A flip-up frame (optional) can be mounted on some models to allow easy switch from a shaded lens to a clear one.

CE  
EN 175



Hand shields in different materials (polyamide, nylon or cellulose fiber) for face protection, with different sizes of window to allow a perfect view of the workpiece.

Users can choose among different shapes according to preference to have always the best protection according to welding position. Easy replacement of lenses.

All our PPEs conform to standard EN 175.

CE  
EN 175



## PERSONAL PROTECTION

# GOGGLES

GCE can boast a complete range of goggles specific for welding and grinding operations. Starting from basic models, very simple and economic to the most sophisticated and trendy with extraflexible frame. Every model has its own feature to better fit user's need. Frame flexibility and adjustability, vents, lenses in glass or polycarbonate, antifog and anti-scratch treatments, replaceable lens, etc.

CE



*Flexer*



*Panoramic*



*Bomber*



*Traditional*



*Visual Flame*

## WORKWEAR AND GLOVES

It's absolutely important to protect the body during welding. GCE has chosen the popular leather tanned and worked in Italy for its workwear range. This choice allows us to provide high quality garments with a very extended durability compared to standard products on the market and with the excellent softness and wearability of Italian style clothing. The range of gloves includes models for general purpose as well as models specific for welders MIG and TIG with extended cuff.

CE



*Soudargon*



*Lucifer 150°*



*Mul-Solo*



WOULD YOU LIKE TO  
**SAVE YOUR COSTS,**  
**MAKE THINGS**  
**EASIER AND FASTER**  
AND GET NEW VIEW  
ON TRADITIONAL  
TECHNOLOGY  
MEETING **LATEST**  
INDUSTRY **TRENDS?**





# CIA - CENTRE OF INDUSTRIAL APPLICATIONS

GCE is one of the worlds leading companies in gas equipment and oxy-fuel applications. GCE has almost 100 years experience in the development, manufacture of oxy-fuel equipment and applications.

The Centre for Industrial Applications was founded in Czech facility in 2008. It is mainly used by customer support to assist transfer of knowledge to the GCE distribution network and to end users of GCE products. The Research and Development team members visit the CIA daily to test new products and applications. CIA is also used to develop training programmes, product demonstrations and professional seminars. An important role of the facility is to assist customers in oxy-fuel applications, identify optimal product set up and process parameters, specifically in:

- CNC oxy-fuel cutting
- Manual oxy-fuel cutting
- Powder cutting
- Oxygen lancing
- Various preheating of metals, glass and plastics
- Flame straightening of steel constructions
- Flame cleaning
- Flame brazing
- Gas welding

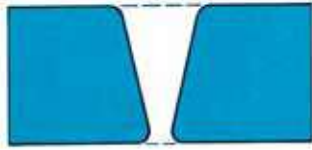


CIA is based in Czech Republic. An up to date CNC cutting machine is available along with portable cutting machines and an entire range of GCE oxy-fuel equipment. Supply systems of all common fuel gases are installed with a high capacity oxygen system. This enables the simulation of conditions similar to reality as in most metal fabricating facilities.

**Solutions of various oxy-fuel technologies can be investigated either in the GCE facility or worldwide on site at the customer. A team of qualified technicians with extensive practical experience is available to provide a comprehensive support service to a worldwide network of GCE products users.**

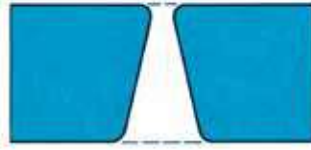


# ADJUSTMENT RECOMMENDATION FOR PERFECT MACHINE CUTTING



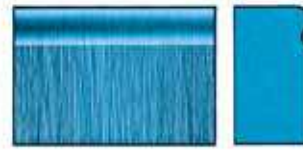
## NARROWING OF KERF (DIVERGENT)

- Forward speed of torch too fast
- Distance between nozzle and sheet metal too big
- Dirty and / or damaged nozzle



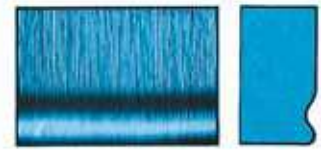
## NARROWING OF KERF (CONVERGENT)

- Forward speed of torch too fast
- Distance between nozzle and sheet metal too big
- Cutting oxygen pressure too high



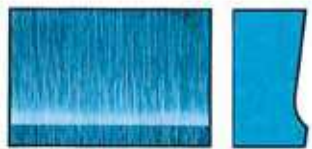
## CONCAVE CUT SURFACE BENEATH TOP EDGE

- Cutting oxygen pressure too high
- Dirty and / or damaged nozzle
- Distance between nozzle and sheet metal too big



## STEP AT BOTTOM EDGE

- Forward speed of torch too fast
- Dirty and / or damaged nozzle



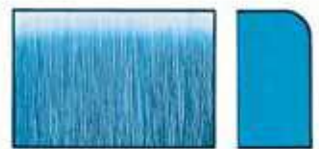
## CONCAVE CUT SURFACE PROFILE

- Forward speed of torch too fast
- Dirty and/or damaged nozzle or nozzle size too small for the thickness to be cut
- Cutting oxygen pressure too low



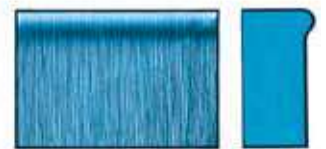
## IRREGULAR CUT SURFACE PROFILE

- Cutting oxygen pressure too low
- Dirty and / or damaged nozzle
- Forward speed of torch too fast



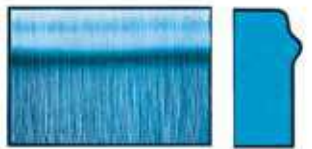
## EDGE MELTING ON

- Forward speed of torch too slow
- Heating flame too strong
- Distance between nozzle and sheet metal too big to too small
- Nozzle size too big for the thickness to be cut



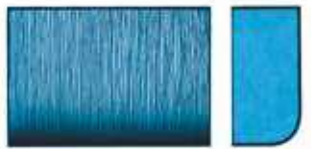
## STRING OF SOLIDIFIED DROPLETS

- Heating flame too strong
- Distance between nozzle and sheet metal too small
- Scaled or corroded sheet metal surface



## MELTED DOWN TOP EDGE WITH ADHERENT SLAG

- Cutting oxygen pressure too high
- Heating flame too strong
- Distance between nozzle and sheet metal too big



## LOWER EDGE ROUNDED

- Cutting oxygen pressure too high
- Forward speed of torch too fast
- Dirty and / or damaged nozzle



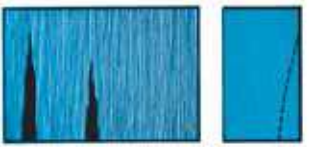
## EXCESSIVE CUT DRAG LINE DEPTH

- Forward speed of torch too fast or irregular
- Distance between nozzle and sheet metal too small
- Heating flame too strong



## IRREGULAR DEPTH OF CUT LINE

- Forward speed of torch too fast or irregular
- Flame too weak



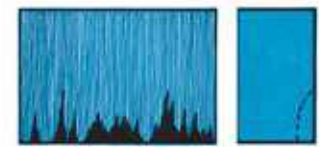
## SINGLE GOUGES

- Forward speed of torch too slow
- Scaled or corroded or dirty sheet metal surface
- Distance between nozzle and sheet metal too small
- Flame too weak
- Flame extinguished with a ban
- Sheet metal with finely divided inclusions



## GROUPED GOUGE AREAS

- Forward speed of torch too fast
- Scaled or corroded or dirty sheet metal surface
- Distance between nozzle and sheet metal too small
- Flame too weak



## GROUPED GOUGES IN THE BOTTOM HALF OF THE CUT

- Forward speed of torch too slow
- Dirty and / or damaged nozzle

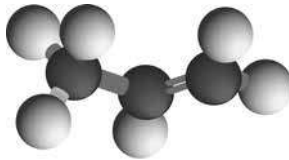
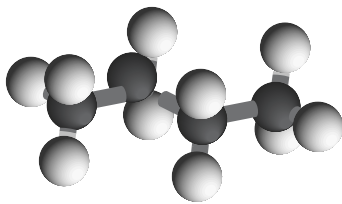


## FIRMLY ADHERENT SLAG LINE AND BOTTOM EDGE

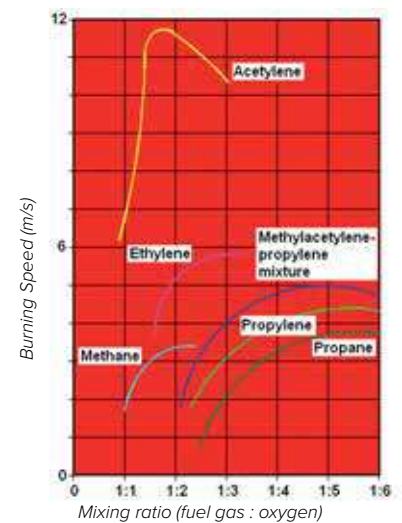
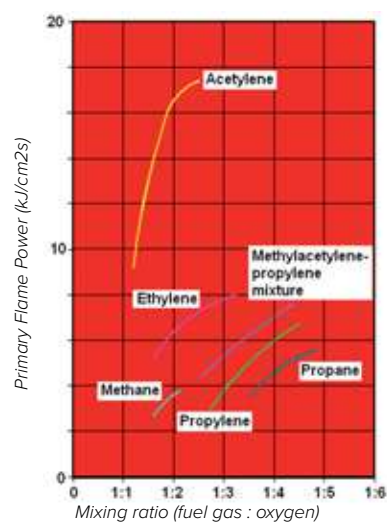
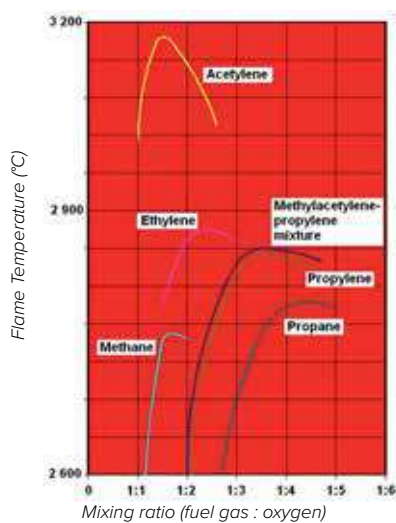
- Forward speed of torch too fast or too slow
- Distance between nozzle and sheet metal too big
- Cutting oxygen pressure too low
- Nozzle size too small for the thickness to be cut
- Flame too weak
- Scaled or corroded or dirty (colour) sheet metal surface



## FUEL GASES

Methane (Natural Gas) - CH<sub>4</sub>Ethane - C<sub>2</sub>H<sub>6</sub>Ethene (ethylene) - C<sub>2</sub>H<sub>4</sub>Ethine (acetylene) - C<sub>2</sub>H<sub>2</sub>Propane - C<sub>3</sub>H<sub>8</sub>Propene (propylene) - C<sub>3</sub>H<sub>6</sub>Propyne (methylacetylene) - C<sub>3</sub>H<sub>4</sub>n. - Butane - C<sub>4</sub>H<sub>10</sub>1 - Butene - C<sub>4</sub>H<sub>8</sub>Butadiene - C<sub>4</sub>H<sub>6</sub>

## FUEL GASES PROPERTIES



## FUEL GASES PROPERTIES

FUEL GAS TYPE			HEATING POWER		MIXING RATIO		FLAME TEMPERATURE (°C)		DENSITY	
									1 BAR, 15°C	LIQUID FORM
			MJ/M3	MJ/KG	N	M	N	M	KG/M3	KG/L
Hydrogen	H2	H	10,758	119,533	0,36	0,42	2 835	2 856	0,09	0,07
Methane	CH4	M	31,814	44,186	1,6	1,8	2 770	2 786	0,72	0,42
Acetylene	C2H2	A	56,93	48,678	1,1	1,5	3 106	3 160	1,17	0,62
Ethylene	C2H4	F	55,674	47,6	1,8	2,4	2 902	2 924	1,17	0,57
Propylene	C3H6	Y	89,999	46,153	2,8	3,5	2 872	2 896	1,95	0,58
Propane	C3H8	P	93,557	46,315	3,75	4,3	2 810	2 828	2,02	0,53

Glossary: V - volume, N - mixing ratio with neutral flame, M - mixing ratio with maximal flame temperature, S - stoichiometric mixing ratio

## MAIN STANDARDS FOR INDUSTRIAL EQUIPMENT

EN ISO 10297	Transportable gas cylinders - Cylinder valves - Specification and type testing
EN ISO 22435	Gas cylinders - Cylinder valves with integrated pressure regulators - Specification and type testing
EN ISO 2503	Gas welding equipment - Pressure regulators and pressure regulators with flow-metering devices for gas cylinders used in welding, cutting and allied processes up to 300 bar (30 MPa)
EN ISO 7291	Gas welding equipment - Pressure regulators for manifold systems used in welding, cutting and allied processes up to 300 bar
ISO 14114	Gas welding equipment - Acetylene manifold systems for welding, cutting and allied processes -- General requirements
EN ISO 5172	Gas welding equipment - Blowpipes for gas welding, heating and cutting -- Specifications and tests
EN ISO 5171	Gas welding equipment - Pressure gauges used in welding, cutting and allied processes
ISO 5175	Equipment used in gas welding, cutting and allied processes - Safety devices for fuel gases and oxygen or compressed air - General specifications, requirements and tests
EN 730-1	Gas welding equipment - Safety devices - Incorporating a flame (flashback) arrestor
EN 730-2	Gas welding equipment - Safety devices - Not incorporating a flame (flashback) arrestor
ISO 9090	Gas tightness of equipment for gas welding and allied processes

## THREAD CONNECTION FOR PRESSURE REGULATORS FOR WORKING PRESSURE UP TO 200 BAR

GAS/COUNTRY STANDARD	SWEDEN SS 2238	CZECH REPUBLIC ČSN 078600	GERMANY DIN 477	FRANCE NF E 29-650	UK BS 341	SPAIN MIE-AP7	ITALY UNI 11144
Oxygen	W21,8	W21,8	G3/4	SI22,91	G5/8	W22,91	W21,7
Acetylene	G3/4	Yoke	Yoke or M24×2LH	Yoke or W22,91LH	G5/8 LH	Yoke or W22,91LH	Yoke or G5/8LH
Argon	W24,32	W21,8	W21,8	SI21,7	G5/8	W21,7	W24,5
Nitrogen	W24,32	W24,32	W24,32	SI21,7	G5/8	W21,7	W21,7
Air	G5/8	G5/8	G5/8	SI30x1,75	G5/8	M30×1.75	W30
Hydrogen	W21,8LH	W21,8 LH	W21,8 LH	SI21,7LH	G5/8 LH	W21,7LH	W20 LH
Carbon dioxide	W21,8	G3/4	W21,8	SI21,7	W0,860	W21,7	W21,7

## WHITWORTH PARALLEL PIPE THREAD DIN ISO 228 BSPP (DIN 259)

NOMINAL DIAMETER	MAJOR DIAMETER MM	MINOR DIAMETER NUT MM	TAPPING DRILL SIZE MM	TPI	PITCH MM
G 1/4"	13,16	11,89	11,8	19	1,337
G 3/8"	16,66	15,39	15,25	19	1,337
G 1/2"	20,95	19,17	19	14	1,814
G 5/8"	22,91	21,13	21	14	1,814
G 3/4"	26,44	24,66	24,5	14	1,814
G 1"	33,25	30,93	30,75	11	2,309

G = British Standard Pipe Parallel Thread, with sealant compound (parallel, cylindrical), external

## NPT AMERICAN TAPER PIPE THREAD ANSI B 1.20.1

NOMINAL DIAMETER	MAJOR DIAMETER MM	TAPPING DRILL SIZE MM	TPI	PITCH MM
1/4" NPT	13,616	10,7	18	1,411
3/8" NPT	17,055	14,1	18	1,411
1/2" NPT	21,223	17,4	14	1,814

American Taper Pipe Thread, with sealant compound.

## WHITWORTH PARALLEL PIPE THREAD DIN 477-1

NOMINAL DIAMETER	MAJOR DIAMETER MM	MINOR DIAMETER NUT MM	TAPPING DRILL SIZE MM	TPI	PITCH MM
W21,8	21,8	20,638	19,476	14	1,814
W24,32	24,32	23,158	21,996	14	1,814
W1	25,4	23,368	21,336	8	3,175

## FLOW RATES CONVERSION COEFFICIENT

TEST GAS	CONVERSION COEFFICIENT								
	AIR	OXYGEN	NITROGEN	ARGON	HYDROGEN	HELIUM	ACETYLENE	LPG	CO <sub>2</sub>
Air	1	0,95	1,02	0,851	3,81	2,695	1,05	0,800	0,808
Nitrogen	0,983	0,93	1	0,837	3,75	2,65	1,03	0,784	0,792

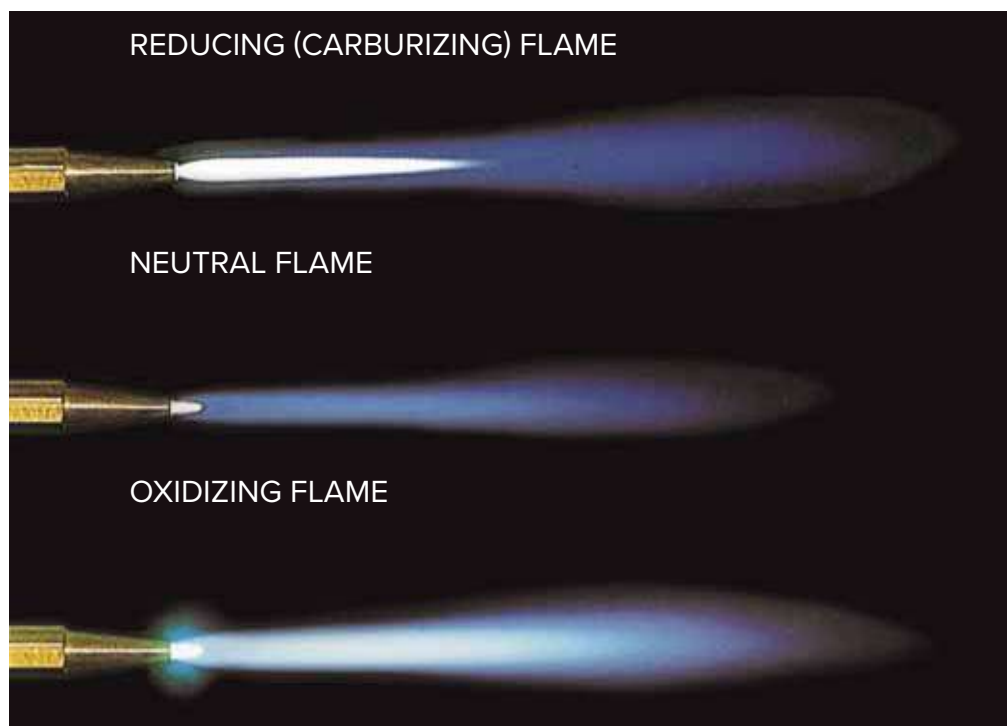
## FLAME PROPERTIES

FUEL GAS TYPE			HEATING POWER		MIXING RATIO		FLAME TEMPERATURE (°C)		RELATIVE DENSITY TO AIR
					VOL OXY / VOL FUEL				
			(MJ/M³)	(MJ/KG)	N	M	N	M	(1 BAR AT 15°C)
Hydrogen	H <sub>2</sub>	H	10,758	119,533	0,36	0,42	2835	2856	0,007
Methane	CH <sub>4</sub>	M	31,814	44,186	1,6	1,8	2770	2786	0,566
Acetylene	C <sub>2</sub> H <sub>2</sub>	A	56,93	48,678	1,1	1,5	3106	3160	0,923
Ethylene	C <sub>2</sub> H <sub>4</sub>	F	55,674	47,6	1,8	2,4	2902	2924	0,98
Propylene	C <sub>3</sub> H <sub>6</sub>	Y	89,999	46,153	2,8	3,5	2872	2896	1,506
Propane	C <sub>3</sub> H <sub>8</sub>	P	93,557	46,315	3,75	4,3	2810	2828	1,589

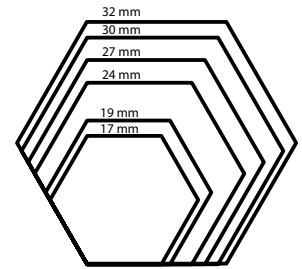
Glossary: N - mixing ratio with neutral flame; M - mixing ratio with maximal flame temperature

## EXPLOSIVE LIMITS

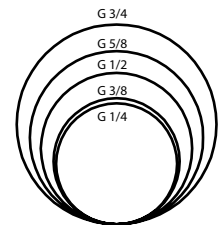
<b>Acetylene</b>	C <sub>2</sub> H <sub>2</sub>	Low	2,5	2,5
		High	93	80
<b>Propane</b>	C <sub>2</sub> H <sub>8</sub>	Low	2,2	2,2
		High	45	9,5
<b>Natural Gas (Methan)</b>	CH <sub>4</sub>	Low	5	5
		High	60	15
<b>Hydrogen</b>	H <sub>2</sub>	Low	4	4
		High	94	74,5



## NUT MEASUREMENT (M 1:1)

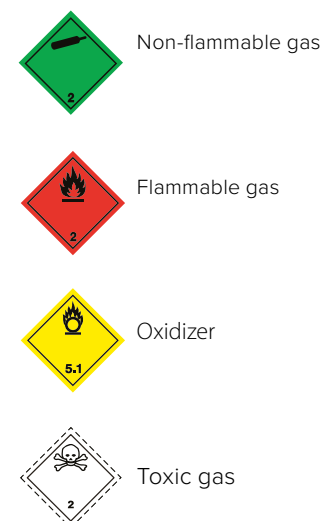


HEX	TYPICAL CORRESPONDING THREAD
17 mm	G 1/4
19 mm	G 3/8
24 mm	G 1/2
27 mm	G 5/8
30 mm	W 21,8
32 mm	W 24,32; G 3/4



G 1/4 = 13,16 mm  
 G 3/8 = 16,66 mm  
 G 1/2 = 20,95 mm  
 G 5/8 = 22,91 mm  
 G 3/4 = 26,44 mm

## TRANSPORT SYMBOLS OF HAZARDOUS SUBSTANCES (ADR, ABSTRACT ONLY)



## WELDING PROCESS

MARK		SHIELDING GAS	APPLICATION
MAG	Metal Active Gas	CO <sub>2</sub> , Ar+CO <sub>2</sub> , Ar+O <sub>2</sub>	Carbon steel, Stainless steel
MIG	Metal Inert Gas	Ar, Ar+He	Aluminium and Aluminium alloy, Titanium, Copper
TIG (WIG)	Tungsten Inert Gas (Wolfram Inert Gas)	Ar	Carbon steel, Stainless steel, Titanium, Copper, Aluminium and Aluminium alloy

## GAS CYLINDER IDENTIFICATION - COLOUR CODING ACCORDING TO EN 1089-3 FOR INDUSTRIAL GASES

O <sub>2</sub>	
AIR Ar+CO <sub>2</sub>	
Ar	
C <sub>2</sub> H <sub>2</sub>	
CO <sub>2</sub>	
H <sub>2</sub> CH <sub>4</sub>	
He	
N <sub>2</sub>	
AsH <sub>3</sub> CO NH <sub>3</sub>	
O <sub>2</sub> +N <sub>2</sub> O O <sub>2</sub> +CO <sub>2</sub> O <sub>2</sub> +He	
N <sub>2</sub> O	

## MAXIMAL FLOW RATE OF ACETYLENE PER 40L OR 50L CYLINDER AT 15°C

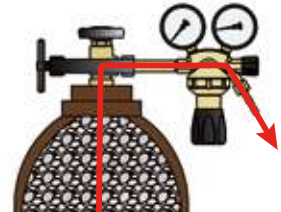
SHORT-TERM CONSUMPTION (MAX.10 MIN.)

max. 1 m<sup>3</sup>/hour

FOR A 1 SHIFT (APPROX. 8 HOURS)

max. 0,5 m<sup>3</sup>/hour

CONTINUOUS CONSUMPTION

max. 0,35 m<sup>3</sup>/hour

## GAS PROPERTIES

GAS	FORMULA	LETTER CODE (ISO 7291)	DENSITY AT 1.013 BAR 15°C	CYLINDER PRESSURE AT 20°C (BAR)
Acetylene	C <sub>2</sub> H <sub>2</sub>	A	1,109	18
Argon	Ar	N	1,691	200
Helium	He	N	0,169	200
Carbon Dioxide	CO <sub>2</sub>	CO <sub>2</sub>	1,872	53,7
Propane	C <sub>2</sub> H <sub>6</sub>	P	1,901	8,3
Oxygen	O <sub>2</sub>	O	1,354	200
Nitrogen	N <sub>2</sub>	N	1,185	200
Hydrogen	H <sub>2</sub>	H	0,0852	200

## FLOWS

	m <sup>3</sup> /h	Litre/h	Litre/min
m <sup>3</sup> /h	1	1000	16,667
Litre/h	0,001	1	0,0167
Litre/min	0,06	60	1

## VOLUMES

	cm <sup>3</sup>	dm <sup>3</sup> /Litre	m <sup>3</sup>
cm <sup>3</sup>	1	1 × 10 <sup>-3</sup>	1 × 10 <sup>-6</sup>
dm <sup>3</sup> /Litre	1000	1	1 × 10 <sup>-3</sup>
m <sup>3</sup>	1 × 10 <sup>6</sup>	1000	1

## PRESSURE UNITS

	BAR	MBAR	KPA	MPA	ATM	PSI
bar	1	1 × 10 <sup>3</sup>	100	0,1	0,986	14,504
mbar	1 × 10 <sup>-3</sup>	1	0,1	1 × 10 <sup>-4</sup>	9,869 × 10 <sup>-4</sup>	0,0145
kPa	1 × 10 <sup>-2</sup>	10	1	1 × 10 <sup>-3</sup>	9,869 × 10 <sup>-3</sup>	0,145
MPa	10	1 × 10 <sup>4</sup>	1 × 10 <sup>3</sup>	1	9,869	145,038
atm	1,013	1013	1,013 × 10 <sup>2</sup>	0,101	1	14,696
psi	0,0689	68,948	6,895	6,89 × 10 <sup>-3</sup>	6,895 × 10 <sup>-2</sup>	1





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