



**WELDING PRODUCTS 2014**  
Gas Equipment - part 1

EDITION 6/2014

**GCE** butbro®  
Security in action

## GCE IS A GLOBAL COMPANY



### GCE BUSINESS IN GENERAL

GCE's main business originally concentrated on the oxy-acetylene cutting and welding market, but with almost 100 years of experience in the handling of high pressure gases, the product range has grown rapidly. Today's product portfolio fits a large variety of applications, from simple pressure regulators and blowpipes for welding and cutting to highly sophisticated gas supply systems for the medical and electronics industry and analytical laboratory equipment.

### GCE GROUP INCLUDES FOUR BUSINESS AREAS:

- Cutting & Welding
- Process Applications
- Medical
- High Purity

### ORIGINS

The origins of GCE (Gas Control Equipment) go back as far as the beginning of the twentieth century when oxy-acetylene cutting and welding methods were first invented. GCE group as an independent entity was formed in 1987 through the merging of gas equipment activities by two of the world's leading industrial gas and welding equipment companies into one independent entity. The GCE Group has grown rapidly since its establishment and is leading the restructuring of the European gas-equipment industry through mergers and acquisitions. Through the years, GCE Group's R&D work has resulted in innovative solutions that have quickly become field standards.

### GCE SERVICES

GCE's main customers in industrial area are wholesalers and local distributors, though in some markets gas companies also distribute equipment and cooperate with GCE Group.

For these companies we provide local commercial support, professional support and marketing activities. Key end-customers such as shipyards, repair shops and OEM customers, such as welding machine manufacturers, account for a significant part of the sales volume.

### A COMPLETE RANGE FOR CUTTING & WELDING

GCE Group is one of the world's leading producers of industrial regulators for cutting and welding. The range covers a broad spectrum of products, for different applications, that have been designed according to the requirements of most European standards such as DIN, Afnor, BSI and Nordic.

The torch range includes products for heating, cutting, brazing and flame-cleaning applications designed in accordance with the preferences of individual markets and customers. Regulators, torches, nozzles and other products are also increasingly combined in sets and sold to users as a single package.

GCE Group is a pioneer in the field of safety equipment and currently produces a comprehensive range of flashback arrestors and hose check valves. A range of nozzles, including the longlife COOLEX® nozzle, completes GCE's Cutting & Welding range.

GCE Group's ranges include various types of gas equipment enabling safe handling of gases in central gas supply systems and brewery equipment, to machine cutting products. We offer cylinder valves and combination valves, pressure control units, gas manifolds, outlet points, shut-off valves, alarm and safety units, high-pressure flexible hoses and accessories for different applications, gases, pressures and flow rates. All products have to meet demanding requirements for rugged durability, leak-proof sealing and overall safety. Uniquely qualified in this area, GCE stands at the forefront of international development of these products.

### GLOBAL LEADER IN OXY-FUEL TECHNOLOGY

With extensive experience in the development and production of machine cutting torches and cutting nozzles, GCE Group is a global leader in oxy-fuel cutting technology. The design of the products is based on GCE's extensive knowledge and expertise in the oxy-fuel area.

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## LOCAL OFFICE INFORMATION



### GCE SALES OFFICE

Yew Tree Way, Stone Cross Park  
Golborne, Warrington  
WA3 3JD

Phone: +44 (0)1942 29 29 50  
Fax: +44 (0)1942 29 29 77  
Email: [sales.gb@gcegroup.com](mailto:sales.gb@gcegroup.com)

### GCE WAREHOUSE

Unit A8(8) Pennington Court  
Moss Industrial Estate, Leigh  
WA3 3JD

**PLEASE SEE OUR WEBSITE FOR OUR CURRENT TERMS AND CONDITIONS**

[www.gcegroup.com](http://www.gcegroup.com)

## PRODUCT SELECTION GUIDE

### OXY-FUEL CUTTING SYSTEMS

The matrix below works as a basic guideline for the selection of suitable product combinations for flame cutting of carbon steel. The material thickness is the basic factor in determining the combination of cutting equipment. Where more than one variant is recommended they are listed in order of their power / performance, the most powerful listed last. In the case of special applications or a typical setups it is always recommended to consult with GCE experts.

Plate thickness	Nozzle	Torch	Checkvalve	Hose	Flashback Arrestors	Regulators
10 mm	AFN	ORBIT	G1/4" LH + RH G3/8" LH + RH	Diam. 6,3 mm	Safe-Guard 2 Safe-Guard 3 Safe-Guard 5	UNICONTROL MULTISTAGE
20 mm	ANM / PNM	MK3				
30 mm	ANME / PNME	NM250				
50 mm	ANM / PNM ANME / PNME	MK3 NM250	G3/8" LH + RH	Diam. 8 mm	Safe-Guard 3 Safe-Guard 5	UNICONTROL MULTISTAGE
75 mm						
100 mm						
125 mm						
150 mm	ANM / PNM ANME / PNME	NM250	G3/8" LH + RH	Diam. 8 mm	Safe-Guard 3 Safe-Guard 5	UNICONTROL MULTISTAGE
175 mm						
200 mm						
225 mm						
250 mm	Consult with GCE	Consult with GCE		Diam. 10 mm	Safe-Guard 5 FR19N	CENTRAL GAS SUPPLY
275 mm						
300 mm						
400 mm						
500 mm						
600 mm						

#### 1. RECOMMENDED LIGHT DUTY CUTTING SYSTEM

Typical set-up of a light duty system for OXY-FUEL cutting of carbon steel. The Orbit torch is suitable for precise and comfortable cutting of material up to thicknesses of 30 mm. The Lightweight shank and cutting attachment offers easy handling, hose checkvalves and three-function Safe-Guard 3 flashback arrestors guarantee safe operation and a pair of UNICONTROL regulators provide sufficient supply of technical gases.

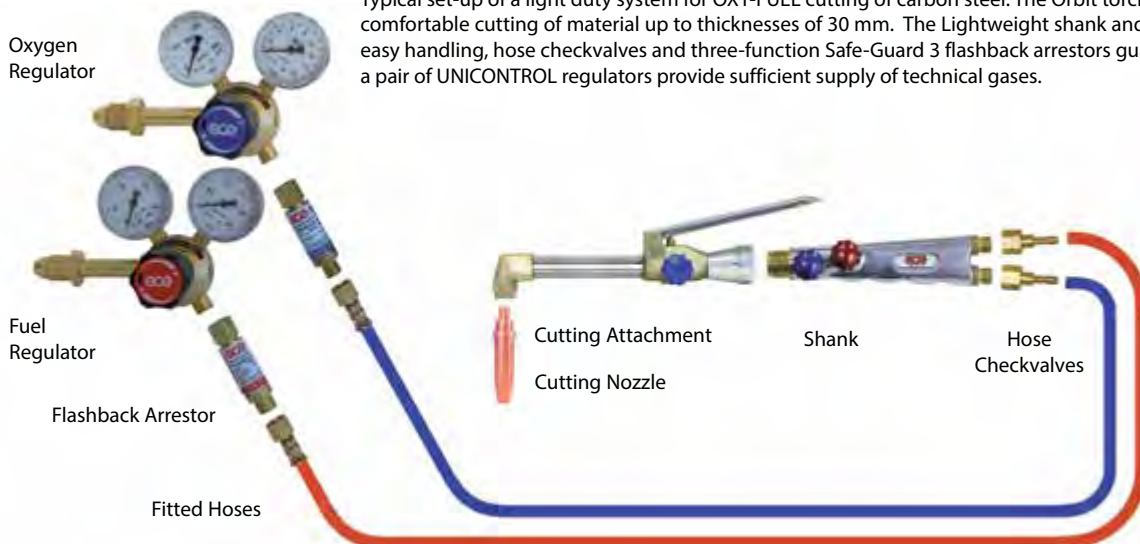


Plate thickness	Nozzle	Torch	Checkvalve	Hose	Flashback Arrestors	Regulators	
1 - 3	0769416	0766229 - Shank ORBIT + 0766230 - Cutting attachment ORBIT	871131 - BV12 HCV 1/4 x 6,3 RH	Hose 6,3 x 13,3	0764470 Safe-guard 3 OXY G3/8	0783653 UNICONTROL OXYGEN	
3 - 6	0769285		+		+		+
6 - 20	0769287		871132 - BV12 HCV 1/4 x 6,3 LH		0764471 Safe-guard 3 FUEL G3/8 LH	0783640 UNICONTROL ACETYLENE	
20 - 30	0768825						

## 2. RECOMMENDED MEDIUM DUTY CUTTING SYSTEM

Medium duty cutting system based on the MK3 torch provides enough power for the cutting of 150 mm steel plates. Aluminum forged shank and cutting attachment with solid machined brass body, head and stainless steel tubes make the entire system robust and durable whilst still maintaining its weight reasonably low. The shank and cutting attachment are part of the complex MK3 system offering wide range of compatible products and accessories. High-end UNICONTROL regulators and sophisticated five function Safe-guard 5 flashback arrestor provide stable gas supply and allow later expansion of the system and potential use of even more powerful torches and nozzles.



Plate thickness	Nozzle ACE	Nozzle PROP	Torch	Checkvalve	Hose	Flahback Arrestor	Regulators
3 - 6	0768554	0768880	0766241 - MK3 Shank	871121 - BV12 G3/8" × 6,3 RH	Hose 6,3 × 13,3	0764457 Safe-guard 5 OXY G3/8" RH	0783652 UNICONTROL OXYGEN
5 - 12	0768555	0768865					
10 - 75	0768556	0768879	+	+		+	+
70 - 100	0768557	0768878	0766242 - MK3 Cutting Attachment	871122 - BV12 G3/8" × 6,3 LH		0764456 Safe-guard 5 FUEL G3/8" LH	0783640 UNICONTROL ACETYLENE
90 - 150	0768558	0769481					

## 3. RECOMMENDED HEAVY DUTY CUTTING SYSTEM

The NM250 cutting torch is the core of the heavy-duty cutting system. The torch provides sufficient capacity to cut steel up to 300 mm thick. The all-metal design, high grade materials, stable surface treatment or colour-coded trim valves all help prolong the life span of the torch, improve ergonomics and simplify handling. A pair of UNICONTROL regulators and high flow Safe-guard 5 flashback arrestors provide sufficient amount of gas even for the most demanding cutting applications whilst keeping safety a priority.

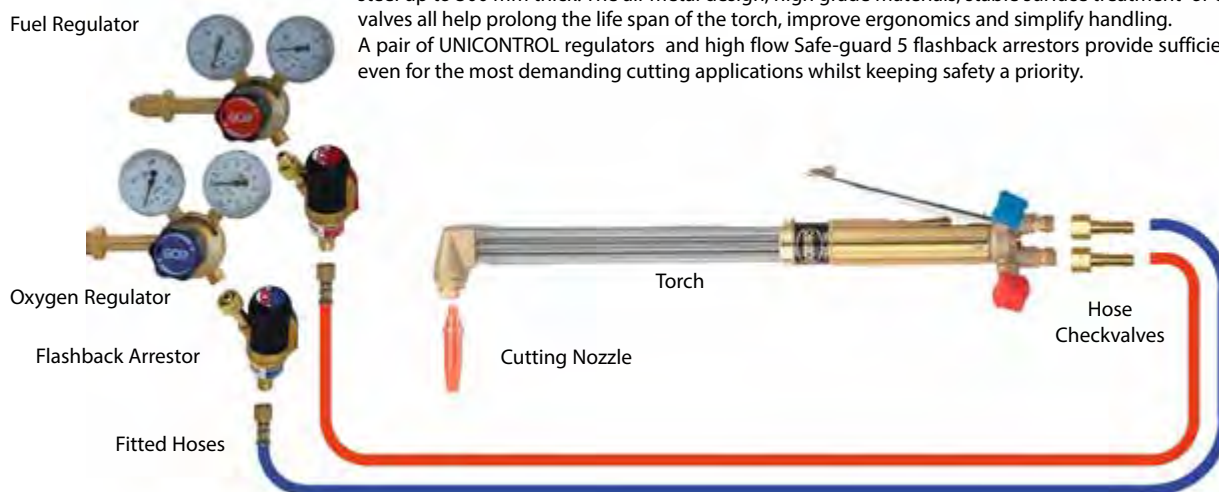
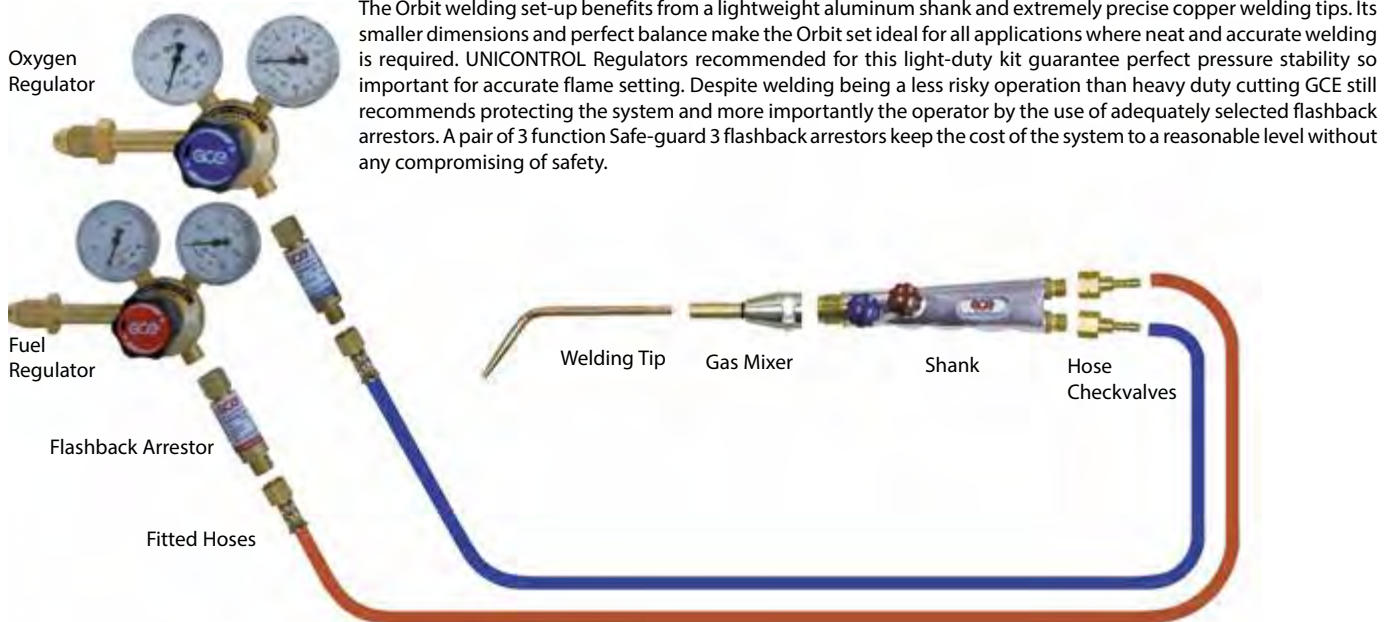


Plate thickness	Nozzle ACE	Nozzle PROP	Torch	Checkvalve	Hose	Flahback Arrestor	Regulators
3 - 6	0768670	0769494	88090C* - NM250 Cutting Torch 490 mm	871111 - BV12 G3/8" × 8 RH or G3/8 × 10 RH	Hose 8 × 15	0764424 Safe-guard 5 OXY G3/8" RH	0783652 UNICONTROL OXYGEN
5 - 12	0768635	0769495					
10 - 75	0768599	0769496	or	871101		+	+
70 - 100	0768636	0769497		+			
90 - 150	0768662	0769498	0766226 - NM250 Cutting Torch 700 mm	871112 - BV12 G3/8" × 8 LH or G3/8 × 10 LH		0764425 Safe-guard 5 FUEL G3/8" LH	0783640 UNICONTROL ACETYLENE
140 - 200	0768598	0769499		871102			
190 - 300	0769041	0769501					

\* Please see page 28 for other cutter options. Universal or Steelmaster (X511)

## OXY-FUEL WELDING SYSTEMS

### 1. RECOMMENDED LIGHT DUTY WELDING SYSTEM



The Orbit welding set-up benefits from a lightweight aluminum shank and extremely precise copper welding tips. Its smaller dimensions and perfect balance make the Orbit set ideal for all applications where neat and accurate welding is required. UNICONTROL Regulators recommended for this light-duty kit guarantee perfect pressure stability so important for accurate flame setting. Despite welding being a less risky operation than heavy duty cutting GCE still recommends protecting the system and more importantly the operator by the use of adequately selected flashback arrestors. A pair of 3 function Safe-guard 3 flashback arrestors keep the cost of the system to a reasonable level without any compromising of safety.

Plate thickness	Welding tip	Torch	Checkvalve	Hose	Flashback Arrestors	Regulators
1 - 8 mm	0766232	0766229 - Shank ORBIT	871131 - BV12 HCV 1/4 × 6,3 RH	Hose 6,3 × 13,3	0764470 Safe-guard 3 OXY G3/8"	0783652 UNICONTROL OXYGEN
	-	+	+		+	+
	0766240	0766231 - MIXER ORBIT	871132 - BV12 HCV 1/4 × 6,3 LH		0764471 Safe-guard 3 FUEL G3/8"LH	0783640 UNICONTROL ACETYLENE

### 2. RECOMMENDED HEAVY DUTY WELDING SYSTEM



Our heavy duty welding system built around the robust MK3 shank presents a sturdy and reliable base for all general welding operations. On top of higher robustness and durability the major advantage of MK3 system is a much bigger potential for future expansion into cutting and heating applications. The UNICONTROL regulators and Safe-guard 3 arrestors are still a perfectly safe choice even for heavy duty welding. However, if you plan to use the same gas source for oxy-fuel cutting then it is recommended to use the UNICONTROL regulators combined with Safe-guard 5 flashback arrestors.

Plate thickness	Welding tip	Torch	Checkvalve	Hose	Flashback Arrestor	Regulators
1 - 8 mm	0766244	0766241 - Shank MK3	871121 - BV12 G3/8" × 6,3 RH	Hose 6,3 × 13,3	0764470 Safe-guard 3 OXY G3/8"	0783642 UNICONTROL OXYGEN
	-	+	+		+	+
	0766252	0766243 - Mixer MK3	871122 - BV12 G3/8" × 6,3 LH		0764471 Safe-guard 3 FUEL G3/8"LH	0783640 UNICONTROL ACETYLENE

## OXY-FUEL HEATING SYSTEMS

The precise selection of the correct heating torch is always entirely dependent on the application you need to solve. It is important to know if you plan on brazing, straightening, surface treatment or other thermal treatment. It is always necessary to know the temperature level you need to reach and the speed of preheating.

If required to straighten a welded construction then a torch with a very concentrated flame is needed.

If required for preheating of metal (casting or forging) a completely different torch must be used to heat up the bigger component's surface.

To keep all heating torches working properly it is necessary to use high flow Safe-guard 5 FBA with powerful UNICONTROL regulators. 8 mm hoses are a key factor in delivering enough gases for reliable performance.

Even proper equipment cannot guarantee reliable function if gas supply is not strong enough.

### ACETYLENE TORCHES

Max. acetylene supply from a 50-liter bottle = approximately 1 m<sup>3</sup>/h.

Reliable function of these torches is guaranteed only with supply from an acetylene bundle.

### PROPANE TORCHES

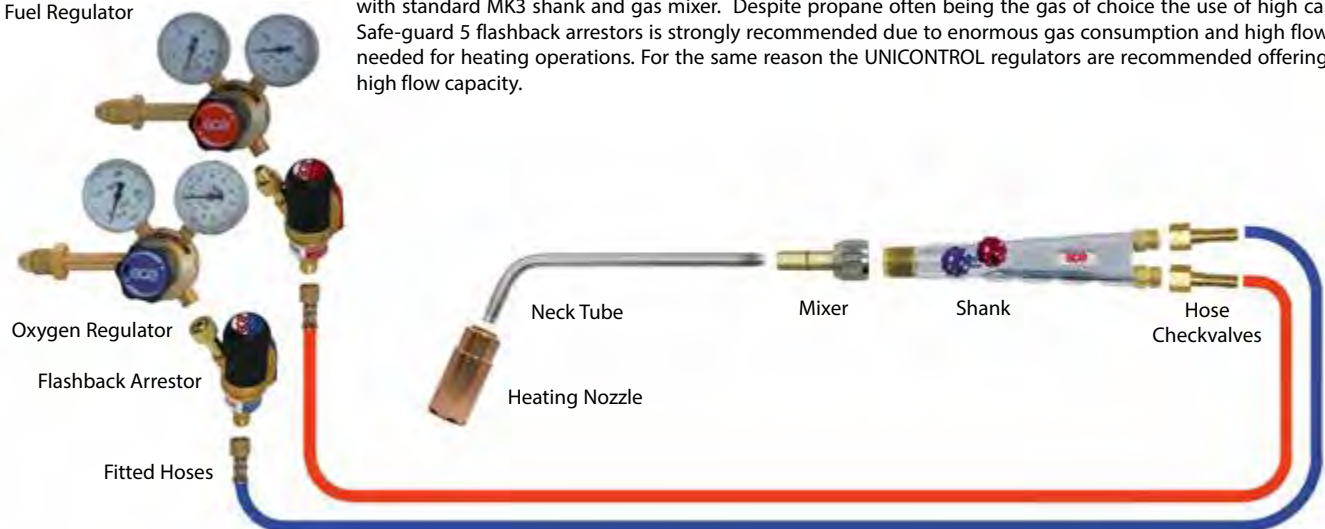
Max. propane supply from a 33-kg bottle = approximately 1,6 m<sup>3</sup>/h.

Reliable function of these torches is guaranteed only with supply from a propane bundle or tank.

See also page 27 for typical assemblies and other options for Welding/Cutting and Heating using MK3 equipment.

## 1. RECOMMENDED HEATING SYSTEM

Fuel Regulator

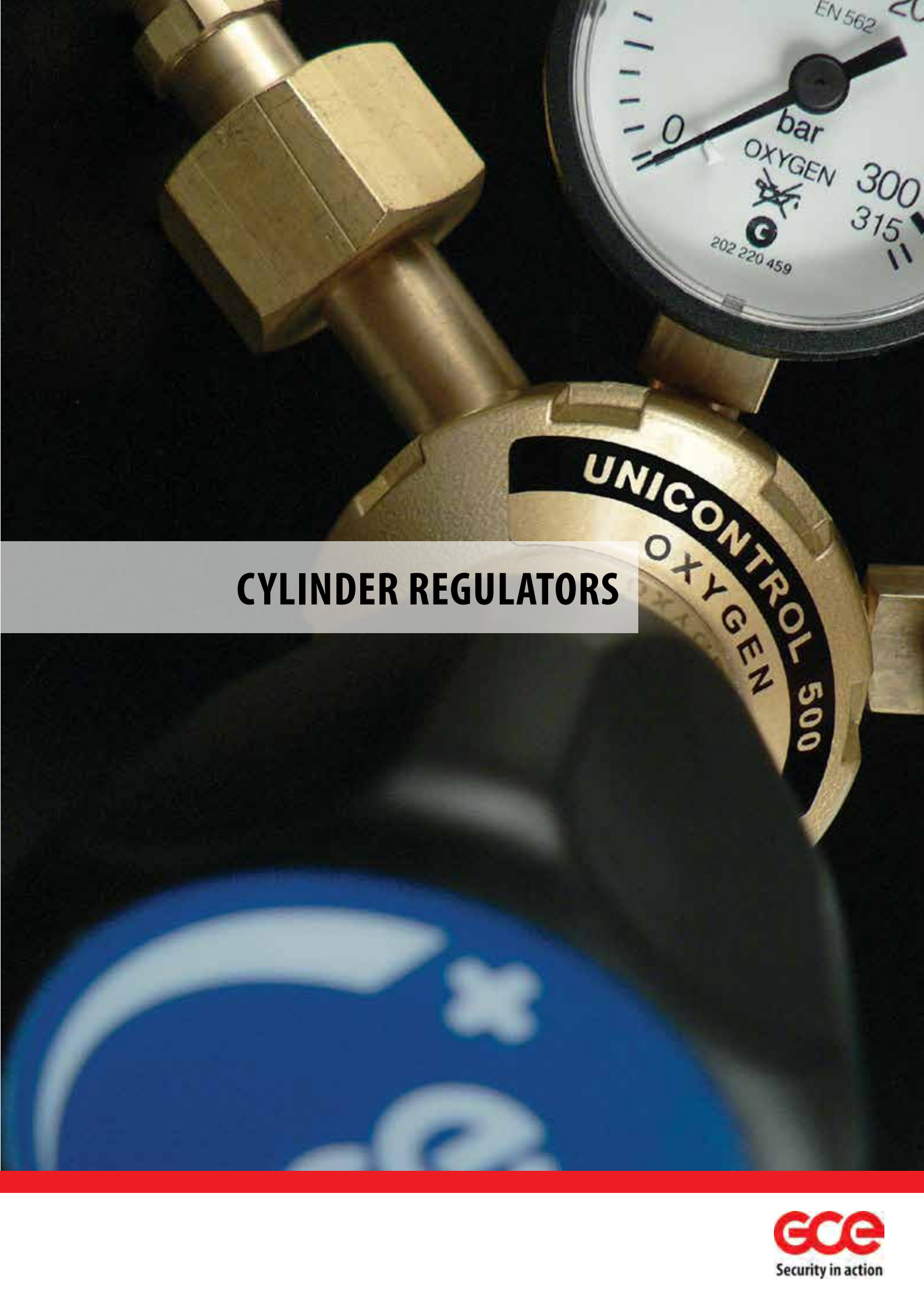


GCE recommend the MK3-based heating system for heating, flame straightening, stress-relieving and other related flame applications. GCE offers a wide selection of specialized torches, burners and superheating heads compatible with standard MK3 shank and gas mixer. Despite propane often being the gas of choice the use of high capacity Safe-guard 5 flashback arrestors is strongly recommended due to enormous gas consumption and high flow rates needed for heating operations. For the same reason the UNICONTROL regulators are recommended offering very high flow capacity.

Nozzle	Torch	Checkvalve	Hose	Flashback Arrestors	Regulators
0769472	0766241 - MK3 Shank	871111 - BV12	Hose 8 × 15	0764457	0783652
-	0766253 - MK3 Mixer	+		Safe-guard 5 OXY G3/8" RH	UNICONTROL OXYGEN
0769476	0766254 Neck Tube	871112 - BV12		0764457	0783656
		G3/8" × 8 LH		Safe-guard 5 FUEL G3/8" LH	UNICONTROL LPG







# CYLINDER REGULATORS

## PRESSURE REGULATORS

*A Pressure Regulator is a device for regulating a generally variable inlet pressure to an as constant as possible outlet pressure.  
(EN ISO 2503)*

By name and definition, a pressure regulator is simply a kind of valve designed to regulate and stabilize system pressure downstream of its placement. The gas cylinder content is consumed stepwise during the operation and thus the pressure upstream of regulator varies from full cylinder pressure to values close to zero. The task of the pressure regulator is to cope with such variation and maintain outlet parameters as stable as possible.

### REGULATOR PRINCIPLE

A pressure regulator maintains downstream pressure by automatically modulating the level of the regulator heart valve opening and gas stream throttling.

By changing the area of opening as upstream pressures and downstream flow-rate vary, pressure drop through the heart valve changes proportionally to maintain the downstream pressure at a relative constant level and relatively independent from remaining cylinder content and - to some extent - independent to gas amount consumed.

Heart-valve opening or closing is driven and actuated by forces balance on regulator diaphragm. Ideally all forces caused by inner pressure conditions and forces generated by spring compression become perfectly balanced and the heart valve seat allows just the requested quantity of gas to expand into the low pressure chamber causing a steady, constant pressure gas stream.

In reality all conditions fluctuate and the heart-valve spindle constantly moves up or down to reflect changing conditions and regulate the opening appropriately. For that reason the proper design of diaphragm, right choice of heart-valve geometry and high-grade materials are key in regulator functionality and reliability. GCE utilize its more than 70 years of experience in regulator business to optimize product design and choose optimal technical solutions.

### PRODUCT SELECTION

To ensure a suitable level of accuracy in pressure maintenance and provide demanded gas flow-rate there are various models of pressure regulators available to meet specific flow and pressure requirements. To ensure the regulator functions correctly and thus a steady and sufficient gas supply, the user should always observe and consider the operating parameters before purchase of product. Your basic selection criteria should be at least the following:

#### GAS MEDIA

The intended working gas selection affects not only connection style but even inner design of the regulator and material compatibility of product with selected media. Never use regulators with other gases than specified by product marking even if inlet connection would allow. Such misuse could result in product damage and in potential health and safety hazards.

#### GAS PRESSURES

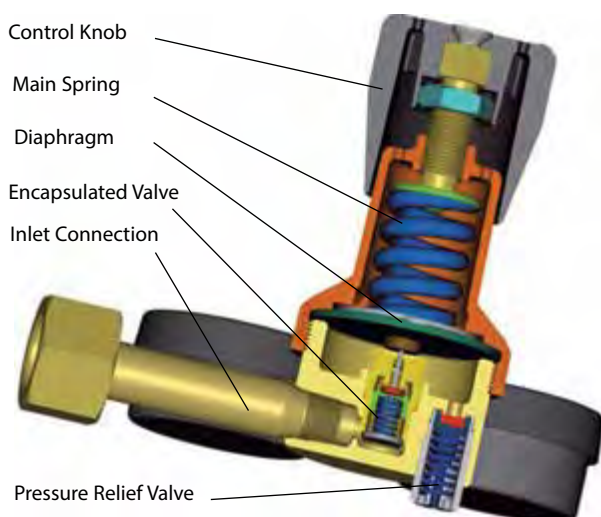
Consider the pressure range available on cylinder side and mainly the pressure requested on regulator output. Standard cutting, welding or heating operations can be served by UNI\S2+ regulator series but even for special high pressure applications the JETCONTROL 600/S Series is available. Due to safety reasons all GCE regulators have maximum outlet pressure restricted close to nominal value stated in catalogue so pay attention for the right selection.

#### GAS FLOW

Not only gas pressure, but also expected gas amount is equally important when selecting correct regulators. Capacity of gas source should also be considered. GCE provide a comprehensive range of regulators which covers the needs of most industrial applications.

#### PRESSURE STABILITY

The pressure stability of the regulator is mostly affected by product size and design. Larger diameter of diaphragm dramatically improves stability. In many specific cases only S2+ MULTISTAGE regulator can provide ultimate stable pressure supply. If in doubt consult your GCE experts for the best selection.



### SAFETY

Despite GCE designers and engineers paying the upmost attention to pressure regulator safety, there is still a big responsibility only on the end user. Pressure regulators are devices dealing with high gas pressures and - especially in cutting and welding applications - dealing with gases which can be potentially dangerous. Any contamination of oxygen washed surfaces by hydrocarbons (oil, grease, organic substances etc.) can lead to fire or explosion so cleanliness is of paramount importance for maintaining safe working conditions. Mechanical damage of connection components can result in leakage or release of broken particles and consequential damage of system. Potential leakage of flammable gases, especially if leaking gas accumulates, sooner or later results in ignition and fire. High attention must be paid to the condition of the regulator safety valves.

GCE regulators are robust and durable devices but appropriate handling, maintenance and care are necessary for their safe and reliable operation. Read and follow all recommendations mentioned in Instruction for Use provided with the product.

## UNICONTROL - SINGLESTAGE CYLINDER REGULATORS

UNICONTROLS are pressure regulators fully conforming to all paragraphs of International Standard ISO2503. The main focus during product design and manufacture was on providing excellent performance, robustness and durability and guaranteeing its uncompromised safety. 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 prevent end users from changing the factory setting.

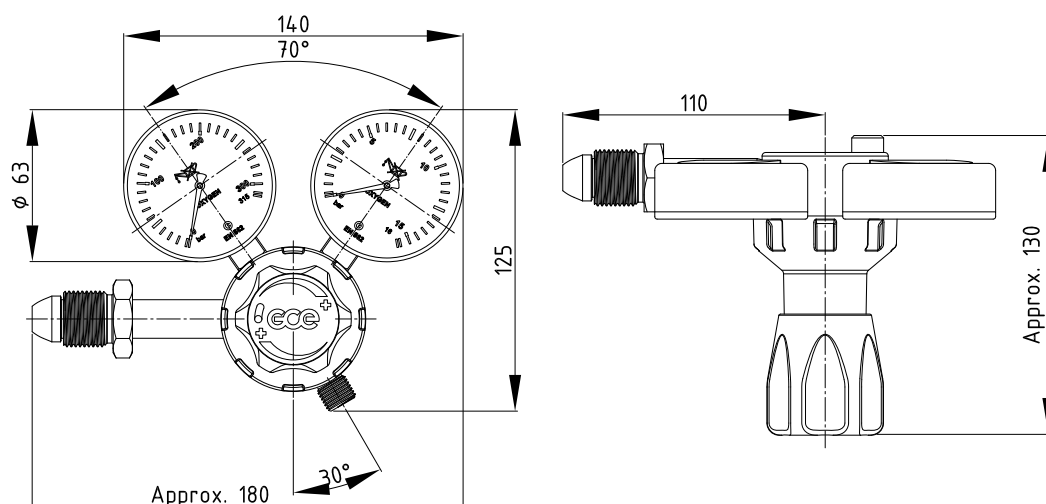
These regulators are independently type-tested and certified by BAM Berlin (The German State Testing Institute).



### TECHNICAL DATA

Body	Forged Brass, chemically stabilized (acid bright dipped)
Bonnet	Die-cast Zinc alloy, chemically stabilized and powder painted
Diaphragm	Diam. 55 mm fabric-reinforced EPDM rubber
Encapsulated Valve	Brass body sealed by PA or high-grade chloroprene rubber
Pressure Gauges	Non-bulkhead 63 mm gauges, class 2,5%, scale calibrated in Bar
Inlet Stem & Nut	Brass, geometry complying with BS-341 standard
Safety Valve	Non-adjustable, plastic housing
Control elements	Ergonomic PA control knob, captive pressure adjusting screw

### DIMENSIONS SCHEME



## PRODUCT FEATURES

Colour Coded Control Elements

Non-detachable Ergonomic Plastic control knob

Max. Outlet pressure locked for operation safety

Inlet Connections exactly complying with BS-341 Standards

Corrosion resistant die-cast Bonnet



Clear & Precise 63 mm Gauges

Technical Data permanently marked on rear side of the body

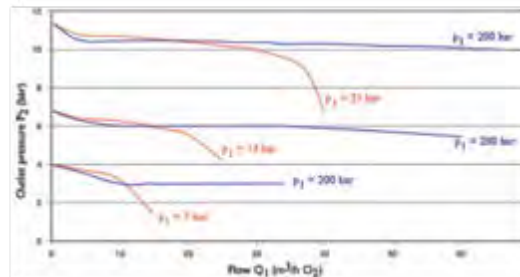
Safety valve located on rear side of body – non adjustable for operational safety

Bonnet powder-painted for corrosion resistance

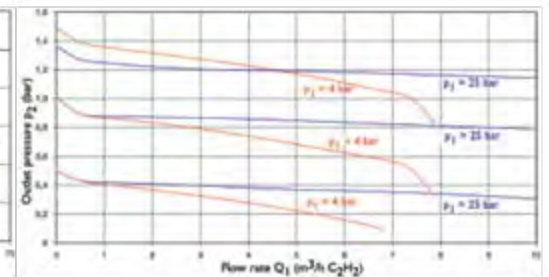
Body forged from high-quality Brass

## REGULATOR PARAMETERS

### OXYGEN



### ACETYLENE



The capacity graphs show the outlet pressure as a function of the flowrate at different inlet pressures.

## UNICONTROL RANGE

### REGULATORS - BOTTOM ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m <sup>3</sup> /h
0783651	Oxygen	0	300	10	G 5/8" (BS3)	G 3/8"	54
0783650	Oxygen	2	300	4	G 5/8" (BS3)	G 3/8"	21
0783652	Oxygen	2	300	10	G 5/8" (BS3)	G 3/8"	54
0783641	Acetylene	0	25	1,5	G 5/8 LH (BS4)	G 3/8 LH	14
0783640	Acetylene	2	25	1,5	G 5/8 LH (BS4)	G 3/8 LH	14
0783656	Propane	0	25	4	G 5/8 LH (BS4)	G 3/8 LH	15
0783644	Argon	2	300	4	G 5/8" (BS3)	G 3/8"	19
0783645	Argon	2	300	Flow 0-15 LPM	G 5/8" (BS3)	G 3/8"	15 LPM
0783647	Argon	2	300	Flow 0-50 LPM	G 5/8" (BS3)	G 3/8"	50 LPM
50530	Mapp	0	small cylinders	small cylinders	G 1/4 LH	G 1/4 LH	

### REGULATORS - SIDE ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m <sup>3</sup> /h
0783653	Oxygen	2	300	4	G 5/8" (BS3)	G 3/8"	54
0783655	Oxygen	2	300	10	G 5/8" (BS3)	G 3/8"	21
0783654	Oxygen	2	300	10	CGA 540	9/16"×18	54
0783643	Acetylene	2	25	1,5	G 5/8 LH (BS4)	G 3/8 LH	14
0783642	Acetylene	2	25	1,5	CGA 300	9/16"×18LH	14
0783648	Argon	1	300	4	G 5/8" (BS3)	G 3/8"	19
0783649	CO <sub>2</sub> *	2	200	4	0,860×14TPI (BS8)	G 3/8"	20

\* for CO<sub>2</sub> regulators use heaters above 30 l/m.



## MEDILINE MEDICAL OXYGEN REGULATORS AND FLOWMETERS - SINGLE STAGE THERAPY



### REGULATORS - BOTTOM ENTRY

Art. Nr.	Gas	Inlet	Outlet
0781660	Oxygen	BS3	G 3/8

### FLOWMETER

Art. Nr.	Gas	Outlet
MM3277	Oxygen	G 3/8 (0-15 LPM)

Art. Nr.	Type
4198650P	Chrome plated nut G3/8"
4194920P	Chrome plated nipple G3/8" × 5 mm

## S2+ MULTISTAGE - HEAVY DUTY DOUBLESTAGE CYLINDER REGULATORS

GCE MULTISTAGE regulators are designed to provide accurate, fluctuation free delivery for precision applications such as machine cutting or laboratory use. The first stage reduces the inlet pressure by over 90% and the large second stage diaphragm ensures accurate delivery pressure. GCE MULTISTAGE regulators are precision built to latest EN ISO 2503 and EN ISO 7291 standards to provide maximum accuracy and safety.

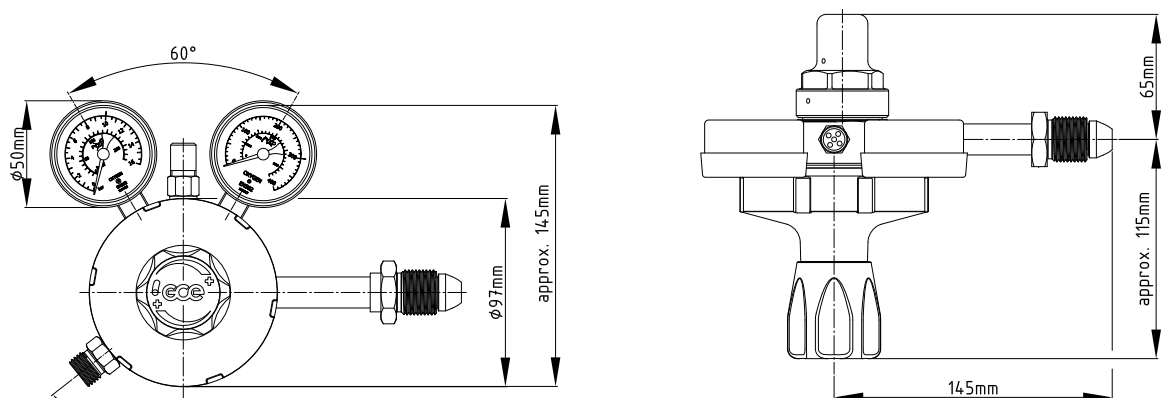
These regulators have the additional feature of being able to pipe away gases from the relief valve port, and comply with the stringent requirements of EN ISO 7291 even for strict manifold application.



### TECHNICAL DATA

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

### DIMENSIONS SCHEME



## PRODUCT FEATURES

Top-safe & Accurate Bulkhead 50 mm Gauges

Body and 1st. Bonnet forged from high-quality Brass

Technical Data permanently marked on body

Powder-painted surface for high corrosion resistance



Non-adjustable safety valve located on top side of body

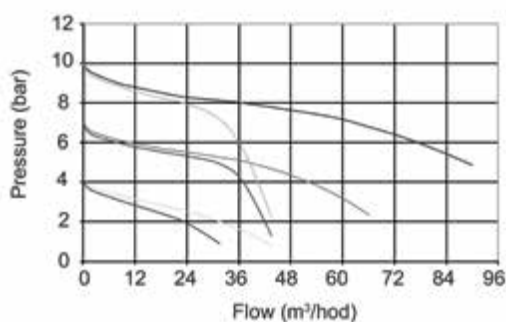
Inlet Connections exactly complying with BS-341 Standards

Max. Outlet pressure locked for operational safety

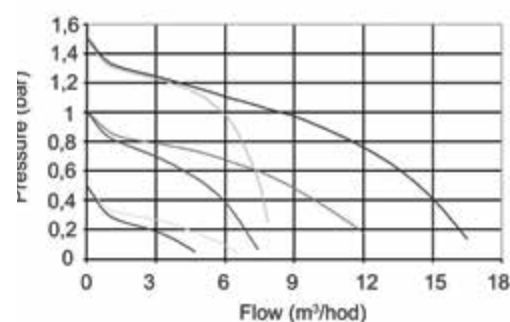
Non-detachable Ergonomic Plastic control knob

## REGULATOR PARAMETERS

### OXYGEN



### ACETYLENE



### MULTISTAGE RANGE

#### REGULATORS - BOTTOM ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m³/h
0762144	Oxygen	2	300	4	G 5/8"	G 3/8"	20
0762145	Oxygen	2	300	10	G 5/8"	G 3/8"	48
0762143	Acetylene	2	25	1,5	G 5/8 LH	G 3/8 LH	10
0762181	Inert	2	300	2	G 5/8"	G 3/8"	12
0762146	Inert	2	300	4	G 5/8"	G 3/8"	20
0762147	Inert	2	300	10	G 5/8"	G 3/8"	48
0762148	Hydrogen	2	300	4	G 5/8 LH	G 3/8 LH	80
0762149	Hydrogen	2	300	10	G 5/8 LH	G 3/8 LH	191
0762152	Nitrous oxide <sup>2</sup>	2	200	10	BS13	G 3/8"	35

#### REGULATORS - SIDE ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m³/h
0762198	Oxygen	2	300	4	G 5/8"	G 3/8"	20
0762199	Oxygen	2	300	10	G 5/8"	G 3/8"	48
0762196	Acetylene	2	25	1,5	G 5/8 LH	G 3/8 LH	10
0762182	Inert	2	300	2	G 5/8"	G 3/8"	12
0762197	CO <sub>2</sub> *	2	200	4	0,860×14 TPI	G 3/8"	16
0762153	CO <sub>2</sub> *	2	200	10	0,860×14 TPI	G 3/8"	40
0762150	Helium	2	300	4	G 5/8"	G 3/8"	191
0762151	Helium	2	200	10	G 5/8"	G 3/8"	35

\* for CO<sub>2</sub> regulators use heaters above 40 l/min.



## JETCONTROL 600/S SERIES- HIGH PRESSURE CYLINDER REGULATORS

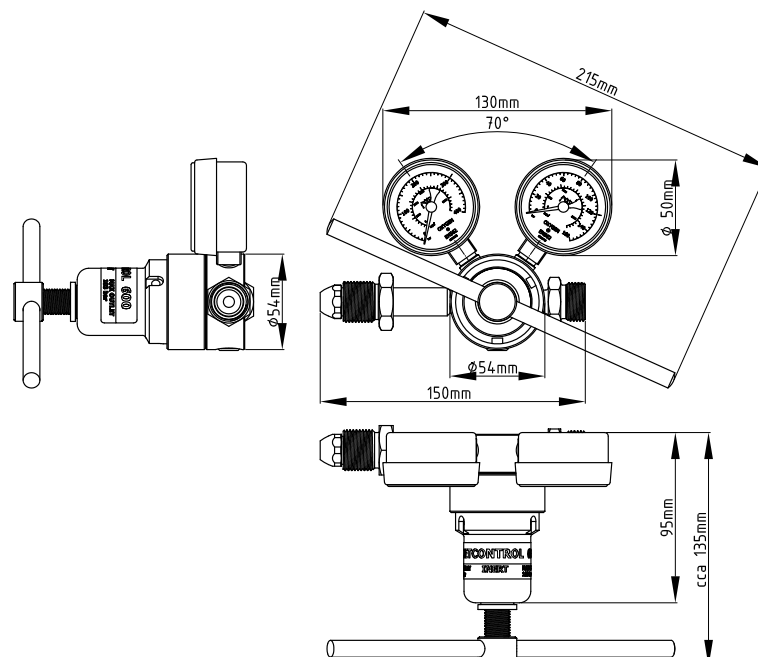
JETCONTROL 600/S Series are single stage, two gauge cylinder regulators extensively used in oil refineries, refrigeration laboratories or industrial processes requiring precise and stable delivery of high pressure industrial gasses. Regulators are primarily designed, tested and manufactured to operate 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.



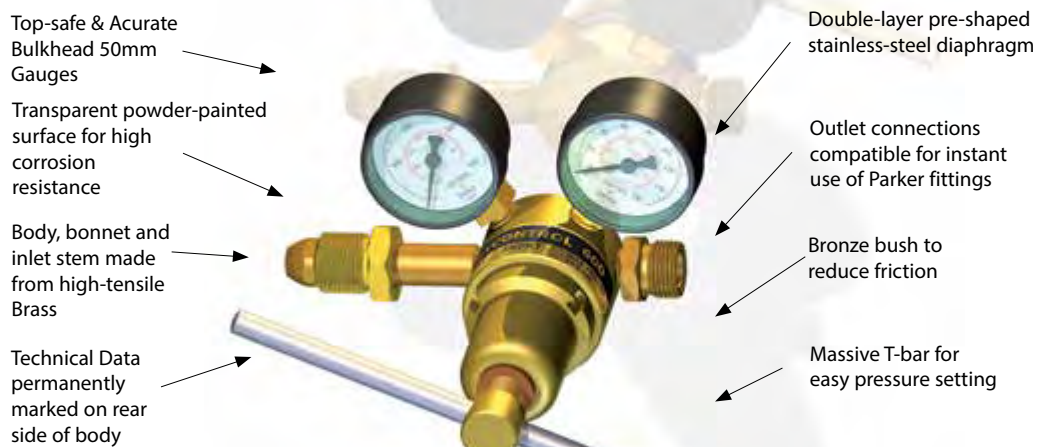
### TECHNICAL DATA

Body	High tensile brass, chemically stabilized and transparent powder-painted
Bonnet	Brass, chemically stabilized and transparent powder painted
Diaphragm	Two layer, diam. 40 mm, pre-shaped stainless steel
Heart Valves	Brass body sealed by high-grade PA
Pressure Gauges	Safe design, bulkhead 50mm gauges, scale in Bar, accuracy class 2,5%
Inlet Stem & Nut	High-tensile brass, geometry complying with BS-341 standard
Safety Valve	Not-present, must be an independent part of downstream gas line
Pressure Setting	Stainless steel T-bar, brass pressure adjusting screw in bronze bush

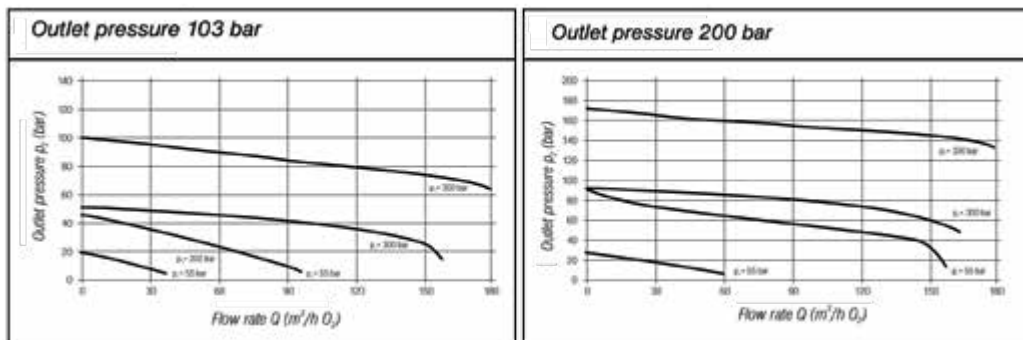
### DIMENSIONS SCHEME



**PRODUCT FEATURES**



**REGULATOR PARAMETERS**



0762866

**JETCONTROL 600/SERIES RANGE**

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m <sup>3</sup> /h
0762864	S 400	Inert	bottom	300	28	36
0762865	S 1500	Inert	bottom	300	100	120
0762866	S 2500	Inert	bottom	300	170	150
0762867	S 1500	Oxygen	bottom	230	100	115
0762511	S 2500	Oxygen	bottom	230	170	140



This range of regulators is specifically designed to meet the needs of the heating, ventilation and air conditioning (HVAC) trades, for purge and leak test applications. Available in three pressure variants, the regulators are supplied with JIC fitting outlets.

Art. Nr.	Type	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)
0762584	RS 400	300	28	G 5/8"	W 11×1,25
0762583	RS 600	300	41	G 5/8"	W 11×1,25
0762590	RS 750	300	52	G 5/8"	W 11×1,25

## SPECIAL PURPOSE REGULATORS

### "M600" SERIES



0762396

"M600" SERIES – improved delivery pressure control is achieved from two stage regulation. Typical applications are those left unattended for periods of time such as cable pressurisation, chemical and laboratory. Range up to 41 bar delivery pressure.

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m <sup>3</sup> /h
0762398	M 600	CO <sub>2</sub>	side	200	41	80
0762397	M 600	Flammable	bottom	300	41	108
0762396	M 600	Inert	bottom	300	41	108
0762377	M 600	Inert	side	300	41	108
0762399	M 600	Oxygen	bottom	230	41	100

### "OR14" SERIES



0783594

"OR14" SERIES – offering some of the highest flows in the GCE BUTBRO range through the use of a special monel tied valve, these are intended for cylinder and pipeline applications. The G5/8 inlet adaptor can be removed to reveal a 1" BSP flat seat female fitting. Range up to 14 bar delivery pressure.

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m <sup>3</sup> /h
0783594	OR 14	Oxygen	rear	230	14	120

### "S1510L2" SERIES



„S1510L2" SERIES – this pipeline regulator is ideal for tank systems, rear entry to suit panel or line mounting. The large outlet configuration is necessary to give high flow from a relatively low inlet pressure source. Max inlet 24 bar and delivery up to 10 bar.

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)
0772037	S1510L2	Oxygen	rear	24	10

### SPECIAL PURPOSE REGULATOR SUMMARY

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m <sup>3</sup> /h
0762864	S 400	Inert	bottom	300	28	36
0762865	S 1500	Inert	bottom	300	100	120
0762866	S 2500	Inert	bottom	300	170	150
0762867	S 1500	Oxygen	bottom	230	100	115
0762511	S 2500	Oxygen	bottom	230	170	140
0762398	M 600*	CO <sub>2</sub>	side	200	41	80
0762397	M 600	Flammable	bottom	300	41	108
0762396	M 600	Inert	bottom	300	41	108
0762377	M 600	Inert	side	300	41	108
0762399	M 600	Oxygen	bottom	230	41	100
0783594	OR 14	Oxygen	rear	230	14	120
0772037	S 151 OL2	Oxygen	rear	24	10	

Outlet connections on "S" series regulators with delivery pressures above 28 bar are compression type, suitable for 1/4" OD tube pipework connection. S1510L2 pipeline regulator is fitted with 1" BSP RH female inlet and 3/4" BSP RH male outlet.

\* for CO regulators use heaters

## ECO SAVER

The ECO SAVER device reduces gas consumption, especially during non-continuous welding processes.

### FEATURES

- Cylinder regulator with up to 300 bar inlet pressure and integrated flow meter.
- Adjustable in the range 0-30 litres per minute.
- Two stage pressure reduction from 300 bar.
- Saves gas during inlet pressure changes (as the cylinder empties).
- Saves gas during flow changes (non-continuous welding processes).
- Provides consistent and stable gas conditions around the weld.
- Available with connections for most markets in Europe.
- Less 'downtime' from changing cylinders which in turn increases productivity.
- Fewer spare cylinders required in stock which reduces rental charges.
- Reduces the number of deliveries required per year.
- Improved weld quality with less porosity.



Art. Nr.	Type	Inlet connection	Outlet connection	Config
9615620	Ar/CO <sub>2</sub>	BS3	G3/8"	SE
9615630	Ar/CO <sub>2</sub>	BS3	G3/8"	BE
0772027	Ar/CO <sub>2</sub>	CGA580 (0.965*14NGO)	9/16" UNF	SE

The ECO SAVER keeps a constant level of gas pressure in the downstream system during the welding process. 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.

### 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%

### TECHNICAL DATA

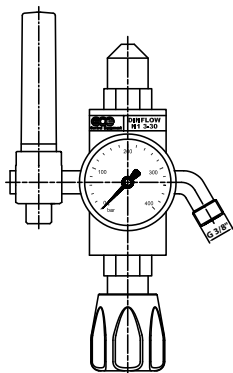
#### ECO SAVER for UK

Inlet pressure:	300 bar
Flow rate:	3-30l/min

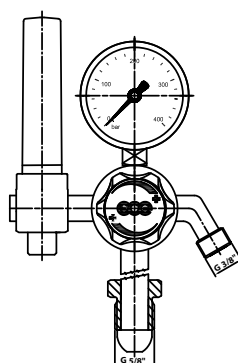
#### ECO SAVER 0772027

Inlet pressure:	200 bar
Flow rate:	3-30l/min

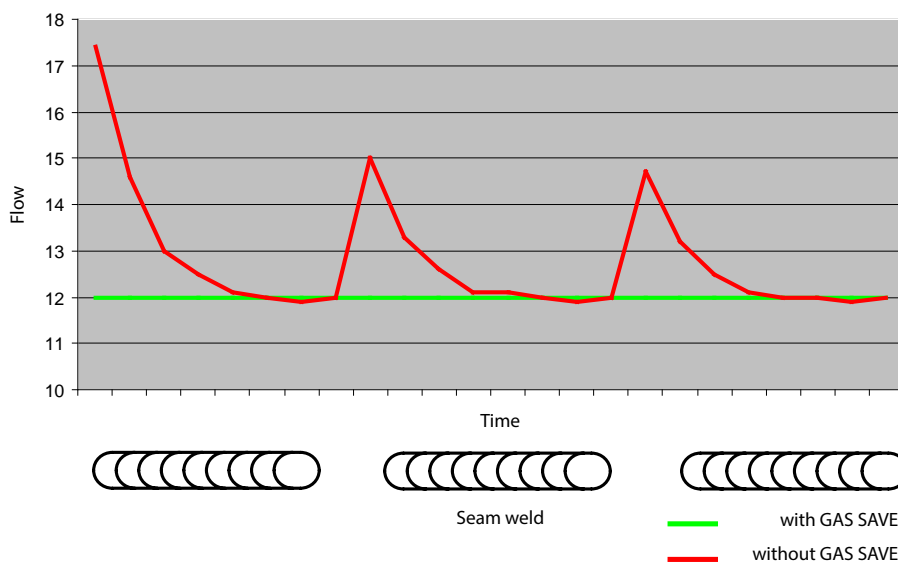
#### SIDE ENTRY (SE) 9615620 and 0772027



#### BOTTOM ENTRY (BE) 9615630



### COMPARISON OF REGULATOR WITH AND WITHOUT GAS SAVER



## SAFETY PRESSURE GAUGES - BS EN 5171

### 1/4" BSPP

Art. Nr.	Gas	Pressure	Ø	Finish	Quantity
9425900	Acetylene	2,5 bar 35 psi	50 mm	Black	1
9415080	Acetylene	2,5 bar 35 psi	63 mm	Gold	1
9425850	Acetylene	40 bar 550 psi	50 mm	Black	1
9426050	Acetylene	40 bar 550 psi	63 mm	Gold	1
388413350512P	General purpose	2,5 bar 35 psi	50 mm	Black	1
388413350873P	General purpose	16 bar 230 psi	50 mm	Black	1
9415090	General purpose	16 bar 230 psi	63 mm	Gold	1
9430710	General purpose	160 bar 2300 psi	50 mm	Black	1
9415100	General purpose	315 bar 4570 psi	63 mm	Gold	1
9426840	General purpose	400 bar 5600 psi	50 mm	Black	1
9426800	Oxygen	16 bar 230 psi	50 mm	Black	1
2306102	Oxygen	16 bar 230 psi	63 mm	Gold	1
9415070	Oxygen	315 bar 4570 psi	63 mm	Gold	1
388413351400P	Oxygen	400 bar 5600 psi	63 mm	Black	1

### SPARE PARTS

Art. Nr.	Description	Material	Gas Type	Quantity
0764771	Crush washer for 1/4" BSPP gauge	copper	Oxygen	10
0764772	Crush washer for 1/4" BSPP gauge	aluminium	Acetylene	10
9424110	Nut 5/8 LH		Acetylene	5
0764764	Encapsulated Valve		Acetylene	10
0764768	Diaphragm		Acetylene	10
0764767	Slip Ring		Acetylene	10
9424090	Nut 5/8 RH		Oxygen	5
0764763	Encapsulated Valve		Oxygen	10
0764768	Diaphragm		Oxygen	10
0764767	Slip Ring		Oxygen	10
9394830	Safety Valve		Oxygen	1
9424110	Nut 5/8 LH		Propane	5
0764764	Encapsulated Valve		Propane	10
0764770	Diaphragm		Propane	10
0764767	Slip Ring		Propane	10

## BALLOON INFLATORS



Available in two variants, with 230 bar inlet rating and BS3 connection.  
 Use: Economy - Latex balloons (gaugeless, requires spanner to connect to cylinder)  
 Standard - Latex balloons, (inc contents gauge and handweel)

Art. Nr.	Type	Quantity
0762817	Economy	1
0762816	Standard	1

## CO<sub>2</sub> GAS HEATERS



Fitted between the cylinder and the regulator, preventing freezing inside the regulator.

Art. Nr.	Gas	Voltage	Thread	Quantity
50831S	CO <sub>2</sub>	240 V	BS8	1
00012450	CO <sub>2</sub>	240 V	BS8	1

## FLOWMETERS



Precision Flowmeter with brass finish, 3/8" BSP connections, available in 2 models, 15 LPM or 30 LPM.

Art. Nr.	Gauges	Quantity
388239391610	0 - 15 LPM	1
9423240	0 - 30 LPM	1



## FLASHBACK ARRESTORS

# GCE SAFE-GUARD-5

## FLASHBACK ARRESTORS

The latest innovation from GCE the SAFE-GUARD-5 offers the maximum level of protection required by EN730-1 to prevent dangerous flashbacks from reaching the regulator and cylinder supply sources.

### FEATURES

There are so many conditions that can cause a flashback, the fitting a flashback arrestor is commonsense. This unit offers the highest level of safety;

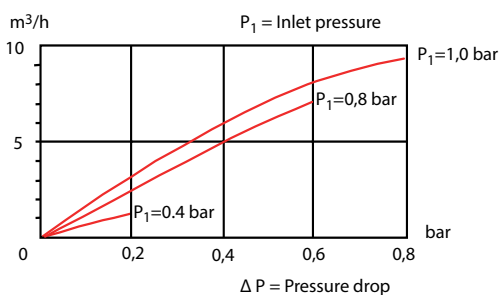
- Maximum number of safety features defined by EN730-1
- High visibility trip/reset lever coupled with quick acting reset even when pressurised
- Angled inlet to minimise hose damage
- 100% production flame tested for Flashback resistance
- Inspection dates can be marked on product for easy reference

### FUNCTIONS

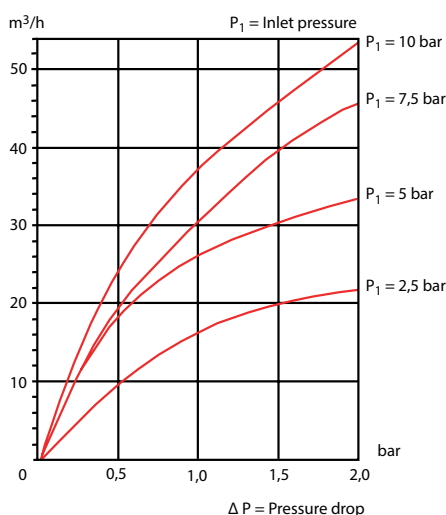
- |   |    |
|---|----|
| • Flame arresting element                           | FA |
| • Non return valve                                  | NV |
| • Pressure sensitive cut off valve                  | PV |
| • Temperature sensitive cut off valve               | TV |
| • Reset mechanism to clearly advise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



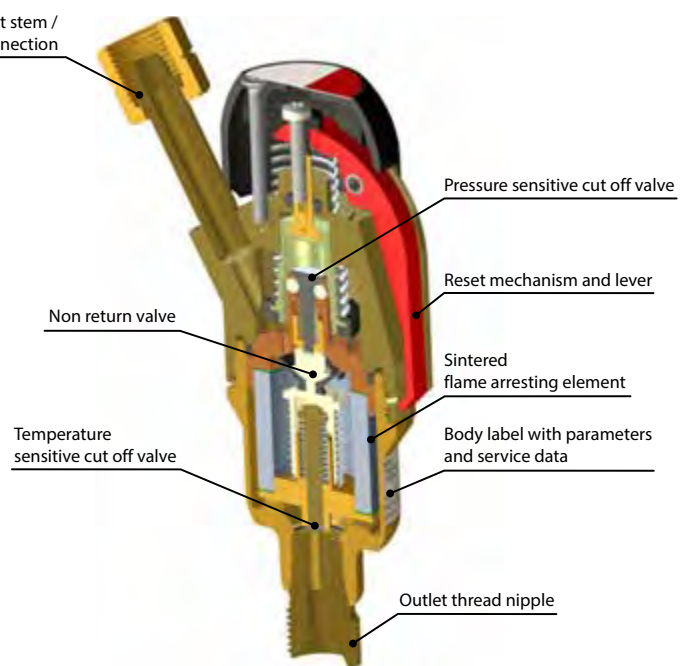
### FLOW CHART - FUEL GAS



### FLOW CHART - OXYGEN



### INTERNAL SAFETY DEVICES



## SAFETY DEVICES - FLASHBACK ARRESTORS

If using high quality equipment kept in good condition and if such equipment is used properly maintaining all health and safety rules, oxy-fuel cutting and heating equipment is safe to handle. There is no substitute for proper training, safety procedures and adequate caution among those that operate oxy-fuel equipment. The right torch, nozzle and a stable source of gas as well as their professional handling is essential but still may not be sufficient. Daily practice shows that Backfire and Flashbacks not only may happen but happen quite frequently. Extra hardware in the form of reliably working flashback arrestors provides an additional safety barrier protecting the cutting/welding operator and surrounding property against health and safety risks and material damages.

### NATURE OF OXY-FUEL RISKS

In the course of proper operation the highly flammable mixture of gases is precisely mixed in the injector, mixer or directly in the cutting nozzle and then ignited and fully combusted right and only at the cutting / welding nozzle orifice. In reality the equipment may get damaged or worn, the gas supply pressure unstable or skills and concentration of the operator not reach necessary levels. Any of these reasons and several others may initiate a chain of events resulting in an accident. The most common mishaps are as follows:

#### BACKFLOWING

Backflow is a dangerous situation whereby oxygen is pushed into the flammable gas hose (or vice versa) creating a highly flammable/explosive gas mixture inside the flexible hoses. A damaged injector or mixer or – more often - clogged or blocked welding tip or damaged cutting nozzle can also cause a change of inner pressure conditions in the system resulting in backflow. Another case is where the reverse flow of a gas occurs when one cylinder runs out during operation, creating an imbalance of pressure in the system. The non-return valve units – both in check valves and/or flashback arrestors are the only devices able to minimize this serious risk.

#### FLASHBACK

A flashback is a momentary or sustained retrogression of the flame upstream of the mixer, usually in the torch or hoses. This is a potentially dangerous situation, particularly if the flame reaches the hoses, where an explosion will occur, causing a rupture or separation of the hose.

#### SUSTAINED BACKFIRE

Sustained backfire is the continuous burning of the flame back inside the torch, usually at the mixer or injector. Flames can also travel further upstream and in extreme cases can reach the regulator and gas cylinders. Sustained backfires are often accompanied by a hissing or squealing sound and/or a smoky, sharp pointed flame. The user should immediately close all torch valves to avoid damage or injury. If a sustained backfire continues to burn without closing torch valves, severe damage to the torch, as well as an increased risk of fire, would result.

### FLASHBACK ARRESTORS

Flashback arrestors (FBAs) are common safety devices that stop or impede the progress of a flame upstream of the insertion point, avoiding back flow and build up of explosive mixtures inside of hoses and can protect the system in case of fire and stop pressure wave in the gas lines. Different FBA provides a different combination of basic safety features:

#### SAFETY DEVICES

A flashback occurs when gases ignite inside the torch and will, if unchecked, travel back up the hose lines to the regulator and cylinders.

#### SOME COMMON CAUSES OF FLASHBACKS ARE:

Faulty Equipment.  
Failure to purge hoses prior to lighting torch.  
Incorrect lighting procedure.  
Blocked nozzle.  
Gas starvation.  
Incorrect pressure settings.  
Overheating.

GCE flashback arrestors are designed to protect the operator. Attention to the following points will greatly reduce the risk of backfire:

- Ensure all equipment is in good condition and regularly checked.
- Ensure all hose connectors are gas tight.
- Follow the manufactures instructions for the torch.
- Ensure pressure settings are correct.
- Purge hoses before lighting torch.
- Keep hands and tools clean. (Oil or grease can cause an explosion when in contact with oxygen).
- In the event of a backfire do not re-ignite the torch until the cause has been determined and remedied.

GCE flashback arrestors require no routine maintenance other than regular checks for external leaks applicable to all gas equipment.

GCE flashback arrestors are sealed and tested during manufacture and no attempt should be made to dismantle or repair the unit. Should there be any doubt about the performance of the unit it should be replaced or returned to the manufacture for service.

### SAFE-GUARD-5



A regulator mounted safety device suitable for all welding and cutting operations, fully complying with EN730, this „lift to reset“ unit incorporates the following features:

- FA Sintered flame arresting element
- NV Non return valve to prevent reverse flow of gases
- PV Pressure trip device, activated by pressure wave accompanying a flashback
- TV Thermal trip device, activated by heat to permanently cut off the gas supply
- SI Status indicator shows green when unit is ready for use. In the event of a flashback the item can be reset by lifting and releasing the bonnet.

Art. Nr.	Gas	Working pressure	Inlet connection	Outlet connection
<b>0764457 (0764424)</b>	Oxygen	0 - 10,0 bar	G 3/8"	G 3/8"
<b>0764456 (0764425)</b>	Fuel gas	1,5 - 5,0 bar*	G 3/8LH	G 3/8LH
<b>0764462 (0762421)</b>	Oxygen	0 - 10,0 bar	G 9/16"	G 9/16"
<b>0764461 (0762420)</b>	Fuel gas	1,5 - 5,0 bar*	G 9/16" LH	G 9/16" LH

\* Acetylene 1-5 bar, Propane/Hydrogen/Methane/Natural gas 5,0 bar



## SAFE-GUARD-3



The new Safe-guard 3 for regulator mounting has been redesigned incorporating an improved sintered filter and thermal trip device. Complies with EN730.

- FA Sintered flame arresting element
- NV Non return valve to prevent reverse flow of gases
- TV Thermal trip device, activated by heat to permanently cut off the gas supply.

Art. Nr.	Gas	Working pressure	Inlet connection	Outlet connection
<b>0764470 (50920)</b>	Oxygen	0 - 10,0 bar	G 3/8"	G 3/8"
<b>0764471 (50921)</b>	Fuel gas	1,5 - 5,0 bar*	G 3/8LH	G 3/8LH
<b>0764474 (50922)</b>	Oxygen	0 - 10,0 bar	G 9/16"	G 9/16"
<b>0764475 (50923)</b>	Fuel gas	1,5 - 5,0 bar*	G 9/16" LH	G 9/16" LH

\* Acetylene 1-5 bar; Propane/Methane/Natural gas 5,0 bar; Hydrogen 3,5 bar

## SAFE-GUARD-2/MV93



A lightweight torch flashback arrestor specially designed for torch fitting. The unit incorporates the following features:

- FA SINTERED FLASH ARRESTOR element to quench a flashback.
- NV NON-RETURN VALVE to prevent reverse flow of gases.

FILTER gauze to prevent foreign matter entering unit. Conforms to BS EN 730.

Art. Nr.	Gas	Connection torch	Connection hose	Suitable for hose	Quantity
<b>81900 (50975)</b>	Oxygen	G 3/8"	G 3/8" male	Add to existing 6/8/10 inst.	1
<b>81950 (50976)</b>	Fuel	G 3/8LH	G 3/8" male LH	Add to existing 6/8/10 inst.	1
<b>81910 (50971)</b>	Oxygen	G 1/4"	G 1/4" male	Add to existing 6 install.	1
<b>81960 (50972)</b>	Fuel	G 1/4LH	G 1/4" male LH	Add to existing 6 install.	1

## FLASHBACK ARRESTOR MV 93-TF - G 3/8"



Art. Nr.	Gas	Inlet connection	Quantity
<b>80900</b>	Oxygen	G 3/8" D - 6/10	1
<b>80950</b>	Fuel	G 3/8" G - 6/10	1

## FLASHBACK ARRESTOR MV 93-TF - G 1/4"



Art. Nr.	Gas	Inlet connection	Quantity
<b>80910</b>	Oxygen	G 1/4" D - 6/10	1
<b>80960</b>	Fuel	G 1/4" G - 6/10	1

## FLASHBACK ARRESTOR MV 93-TT - 7/10 HOSE NIPPLE



Art. Nr.	Gas	Inlet connection	Quantity
<b>80700</b>	Oxygen	7/10 hose nipple	1
<b>80750</b>	Fuel	7/10 hose nipple	1

## SAFE-GUARD-1/BV12



Hose check valves prevent the reverse flow of gases beyond the torch inlets. GCE hose check valves 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 use with Oxygen, Acetylene, Propane or Natural Gas and operate effectively on either nozzle mix or injector type torches or machine cutting torches.

Art. Nr.	Gas	Connection torch	Suitable for hose	Quantity
<b>871121</b>	Oxygen	G 3/8"	6 mm hose	1
<b>871122</b>	Fuel	G 3/8 LH	6 mm hose	1
<b>871111</b>	Oxygen	G 3/8"	8 mm hose	1
<b>871112</b>	Fuel	G 3/8 LH	8 mm hose	1
<b>871101</b>	Oxygen	G 3/8"	10 mm hose	1
<b>871102</b>	Fuel	G 3/8 LH	10 mm hose	1
<b>871131</b>	Oxygen	G 1/4"	6 mm hose	5
<b>871132</b>	Fuel	G 1/4 LH	6 mm hose	5
<b>9401480</b>	Oxygen	9/16	6-8 mm hose	
<b>9402370</b>	Fuel	9/16	6-8 mm hose	

## QUICK CONNECTORS DIN EN 561

Fast and safe connecting and disconnecting under pressure.

### QUICK COUPLING TYPE SG (A) FOR CONNECTION TO TORCH



Art. Nr.	Gas	Hose Ø
14008163	Oxygen	4 mm
14008140	Oxygen	6,3 mm
14008160	Oxygen	8 mm
14008153	Fuel	4 mm
14008154	Fuel	6,3 mm
14008141	Fuel	8 mm

### STAINLESS STEEL COUPLING PIN TYPE KG (B) FOR GRIP QUICK COUPLING



Art. Nr.	Gas	Nut size
14008144	Oxygen	3/8"
14008143	Oxygen	1/4"
14008142	Acetylen	3/8" LH

### QUICK COUPLING TYPE SS (C) HOSE



Art. Nr.	Gas	Thread size
14008152	Oxygen	3/8"
14008151	Oxygen	1/4"
14008150	Fuel	3/8" LH
30015218	Inert	1/4"
30015849	Inert	3/8"

### QUICK COUPLING TYPE SD (D) FOR CONNECTION TO THE PRESSURE REGULATOR



Art. Nr.	Gas	Nut size
14008147	Oxygen	3/8"
14008146	Oxygen	1/4"
14008145	Fuel	3/8" LH
30013758	Inert	1/4"
30013759	Inert	3/8"

### STAINLESS STEEL COUPLING PIN TYPE KD (E)



Art. Nr.	Gas	Hose Ø
14008155	Oxygen	4 mm
14008149	Oxygen	6,3 mm
14008159	Oxygen	8 mm
14008161	Fuel	4 mm
14008162	Fuel	6,3 mm
14008148	Fuel	8 mm
14008253	Inert	6,3 mm

### DOUBLE THREADED CONNECTOR (F) MADE OF BRASS



Art. Nr.	Thread size
14008810	G 1/4"
14008811	G 3/8"
14008812	G 3/8" LH
14008813	G 1/4" LH
14008814	G 3/8" - G 3/8" LH
14008816	G 3/8" - G 1/4"





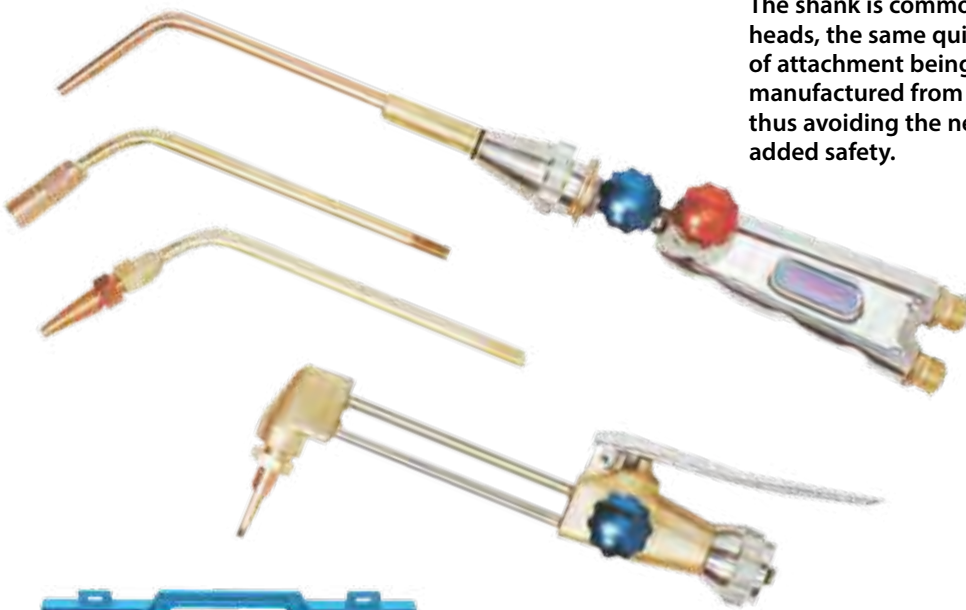
## TORCHES AND NOZZLES

# ORBIT

## LIGHTWEIGHT WELDING & CUTTING BLOWPIPE

A superbly constructed welding & cutting blowpipe designed with safety in mind and engineered from highest quality materials to complement the operator in production or light gauge maintenance welding & cutting.

The shank is common to both welding and cutting heads, the same quick, positive and leak-free means of attachment being used for both. The shank is manufactured from a solid drilled aluminium forging thus avoiding the necessity of internal tubes and giving added safety.



ORBIT COMBINED  
WELDING & CUTTING OUTFIT  
81000



ORBIT L/W WELDING OUTFIT  
81903

### WELDING

The shank can be used with either lightweight swaged nozzles or D.H. solid copper tips + brass neck according to the operators preference, enabling precise flame control and up to 8mm (5/16") welding capacity in steel.

### CUTTING

The newly designed lightweight cutting attachment uses the nozzle mix principle and is thus highly resistant to backfire and flashback.

Although of a lightweight design, it is engineered from solid brass castings and silver soldered tubes to provide an extremely robust construction. Using Orbit A-FN type nozzles and Acetylene fuel gas the orbit has a cutting capacity of over 20mm.

GCE BUTBRO torches and nozzles conform to BS EN ISO 5172

- HOSE CONNECTIONS - 1/4" BSP (Other threads available on request)
- WELDING CAPACITY - 8 mm
- CUTTING CAPACITY - 20 mm
- WELDING NOZZLES - Lightweight, Swaged Nozzles Size 1-25  
D.H. Solid Copper Tips Sizes 1-25
- CUTTING NOZZLES - ORBIT A-FN Cutting Nozzles  
ORBIT A-SFN Sheet Metal Nozzles  
(Full Details of nozzles on page 13/14/15)

## ORBIT



Art. Nr.	Description	Quantity
<b>0766229 (81222)</b>	ORBIT shank	1
<b>0766230 (81444)</b>	ORBIT cutting attachment	1
<b>0766231 (81025)</b>	ORBIT mixer	1
<b>62017</b>	ORBIT thread DH neck	1
<b>81666</b>	ORBIT heating nozzle & neck	1
<b>9438170</b>	ORBIT c/a nozzle nut	1

## ORBIT COMBINED WELDING & CUTTING OUTFIT

### CONSISTING OF:

ORBIT Shank, Mixer & Cutting Attachment, L/W Nozzles Size 2, 5, 7, 10, 13, 18, 25, 3/64" A-FN Type Cutting Nozzle, Nozzle Cleaning Outfit, Outfit Spanner, Data Cards, Plastic Carrying Case

Art. Nr.	Description	Quantity
<b>81000</b>	ORBIT combined outfit	1

## ORBIT L/W WELDING OUTFIT

### CONSISTING OF:

ORBIT Shank & Mixer, L/W Nozzles Size 1, 2, 3, 5, 7, 10, 13, 25, Hose Check Valves, Outfit Spanner, Data Card, Plastic Carrying Case

Art. Nr.	Description	Quantity
<b>81903</b>	ORBIT combined outfit	1

## MODEL "O" TYPE LIGHTWEIGHT BLOWPIPE



This extremely lightweight blowpipe has excellent balance and handling qualities. It can be used with either acetylene or hydrogen and is supplied complete with neck and a set of tips. Designed for very fine welding and brazing applications, including the fusion of thin gauge sheet metal up to 1.5mm (1/16") and lead welding.

### SUITABLE FOR:

Jewellery, gold and silver work. Lead, zinc and thin section aluminium welding. Electrical and electronic engineering. Dental composition and repairs. Heating, ventilation and refrigeration work. Light fabrication and Laboratory work.

Art. Nr.	Description	Quantity
<b>47000</b>	Standard model "O" blowpipe with neck & 5 tips	1
<b>47666</b>	Model "O" neck	1

### TECHNICAL DATA

Hose connections:	1/4" BSP
Welding capacity:	1,5 mm
Welding nozzles:	Model "O" nozzle sizes 1-5 (Part N°47100-47500)

## WELDING TORCH JETSOUND

This torch is light and easy to handle; it has been developed specifically for refrigerator technicians and installers of airconditioning equipment, who require a torch to be easy to handle for reaching narrow hard to get at points. JETSOUND torch allows a reduction in the movement of the operator's wrist. People who have already used the JETSOUND torch appreciate its perfect flame regulation and low flow-rates, thanks to the possibility of regulating oxygen flow by means of a pin (microregulation). This means that the attachment and the knob are on the same axis.



Art. Nr.	Fuel gas	Connections	Length	Weight
0766277	Acetylene	G1/4" / G1/4" LH	360 mm	0,51 kg

### JETSOUND ACCESSORIES

Art. Nr.	Product
548800100122	Nozzles for Welding (6 pcs) Acetylene
22290270	160 l/h Flexible Welding Attachment
22290271	250 l/h Flexible Welding Attachment
22290272	315 l/h Flexible Welding Attachment
22290273	400 l/h Flexible Welding Attachment
22290274	500 l/h Flexible Welding Attachment



Welding nozzles



Double flame attachment



Flexible welding attachment

Welding range (mm)	Nozzles consumption (l/h)	Pressures (bar)		
		Oxygen	Acetylene	Propane
0,4 - 0,5	40	1 - 1,5	0,2 - 0,5	0,1 - 0,4
0,6	63			
1	100			
1,5	160			
2,5	250			
3	315			
4	400			
5	500			

## CADDYPAK

### CADDYPAK



The GCE BUTBRO CADDYPAK provides all the qualities of conventional Oxy-Acetylene welding cutting and heating without heavy cumbersome full size cylinders. Weighing only 33 Kgs it is totally portable making it ideal for many applications including:

- FARM REPAIRS
- CONSTRUCTION SITEWORK
- MOBILE REPAIR SERVICES
- FACTORY MAINTENANCE
- GARAGE & MOTOR TRADE
- DIY APPLICATIONS

The robust trolley has been re-designed to give added stability and has an adjustable height clamp to accommodate taller cylinders. Storage for the outfit case is provided on the rear of the trolley. The handle is retractable to enable the whole kit to be carried in a car boot.

The GCE BUTBRO ORBIT complete welding and cutting Caddypak provides welding capacity up to 8mm (5/16") and cutting capacity up to 25mm (1") and heating with acetylene. Just add the cylinders and the kit is ready for immediate use.

N.B. CYLINDERS NOT INCLUDED. GCE BUTBRO torches and nozzles conform to BS EN ISO 5172.

#### THE OUTFIT COMPRISES:

ORBIT Shank, Mixer & Cutting Attachment, Single Stage, 2 Gauge Oxygen Regulator, Single Stage, 2 Gauge Acetylene Regulator, Slimguard Oxygen Flashback Arrestor, Slimguard Acetylene Flashback Arrestor, 5 Metres Twin Line Fitted Hose, L/W Nozzles Size 2, 5, 7, 10, 13, 3/64" A-FN Type Cutting Nozzle, ASFN Type Sheet Metal Cutting Nozzle, ORBIT Heating Nozzle & Neck, Sunfire Sparklighter, Nozzle Cleaner Outfit, Outfit Spanner, Combination Spanner, Goggles, Data Card, Plastic Carrying Case, Caddypak Cylinder Trolley



Art. Nr.	Description	Quantity
81789	Caddypak	1



## MK 3A/4/5

### MK3A/4/5 COMBINED WELDING & CUTTING TORCH FOR MEDIUM DUTY APPLICATIONS



The GCE BUTBRO MK3A /4/5 is a high pressure, sturdily constructed and well balanced welding and cutting torch replacing the GCE BUTBRO MK 2, together with additional improved progressive features. Each component (shank, mixer, cutting attachment) is inter-changeable with other leading makes of type 3/4/5 equipment. It has front mounted colour coded control valves, employing stainless valve spindles fitted with both 'O' ring and nylon seals; providing fine adjustment and leak-free conditions. The shank is common to both welding and cutting heads, the same quick positive positioning and leak-free means of attachment being used for both. GCE BUTBRO torches and nozzles conform to BS EN ISO 5172.

#### WELDING AND HEATING

Designed for welding work from 18swg to over 1", thickness using type 3/4/5 swaged nozzles sizes 1 - 90 litres. The mixer seats on serrated toothed faces allowing the operator a selection of positive nozzle positioning through 360°. Also can be used for heating, with either acetylene or propane heating nozzles, together with a heating neck.

#### CUTTING

The cutting head is nozzle mixing, enabling the operator to use either acetylene or propane fuel gases by fitting the appropriate nozzle. A range of ANM and PNM nozzles are available for clean efficient cutting of material thickness from sheet metal to 50mm (2") using both acetylene, and propane fuel. It's versatility allows gouging, flame cleaning etc., to be supplied to customer's requirements.

#### PROPANE SUPER HEATING

Using a propane super heating mixer and 10", or 28", stainless steel super heating neck an intense heat output of up to 600,000 Btu/H is obtained. Ideal for heating castings and similar large articles.

Art. Nr.	Description	Quantity
0766241 (77222)	MK 3A/4/5	1
0766243 (77333)	MK 3A/4/5 welding mixer	1
78333	MK 3A/4/5 HD welding mixer (size 45-90 nozzles)	1
0766253 (77555)	MK 3A/4/5 propane superheating mixer	1
0766242 (77444)	MK 3A/4/5 cutting attachment	1
68666	MK 3 brass heating neck (for AHT heating nozzles)	1
68777	MK 3 long brass heating neck (for AHT heating nozzles)	1

#### TECHNICAL DATA

Hose connections:	3/8" (other threads available on request)
Welding capacity:	25 mm
Cutting capacity:	50 mm
Welding nozzles:	Type 2/3/4/5 Swaged Welding Nozzles Sizes 1-90
Cutting nozzles:	ANM (Acetylene) Cutting Nozzles
	PNM (Propane) Cutting Nozzles
	ASNM Sheet Metal Nozzles
	AGNM Gouging Nozzles
	ARCNM Rivet Cutting Nozzles
Heating nozzles:	AHT (Acetylene) Heating Nozzles
Super heating nozzles:	Super Heating Nozzles (Propane) Sizes 1H-5H

### OXY-PROPANE SUPERHEATING NECKS



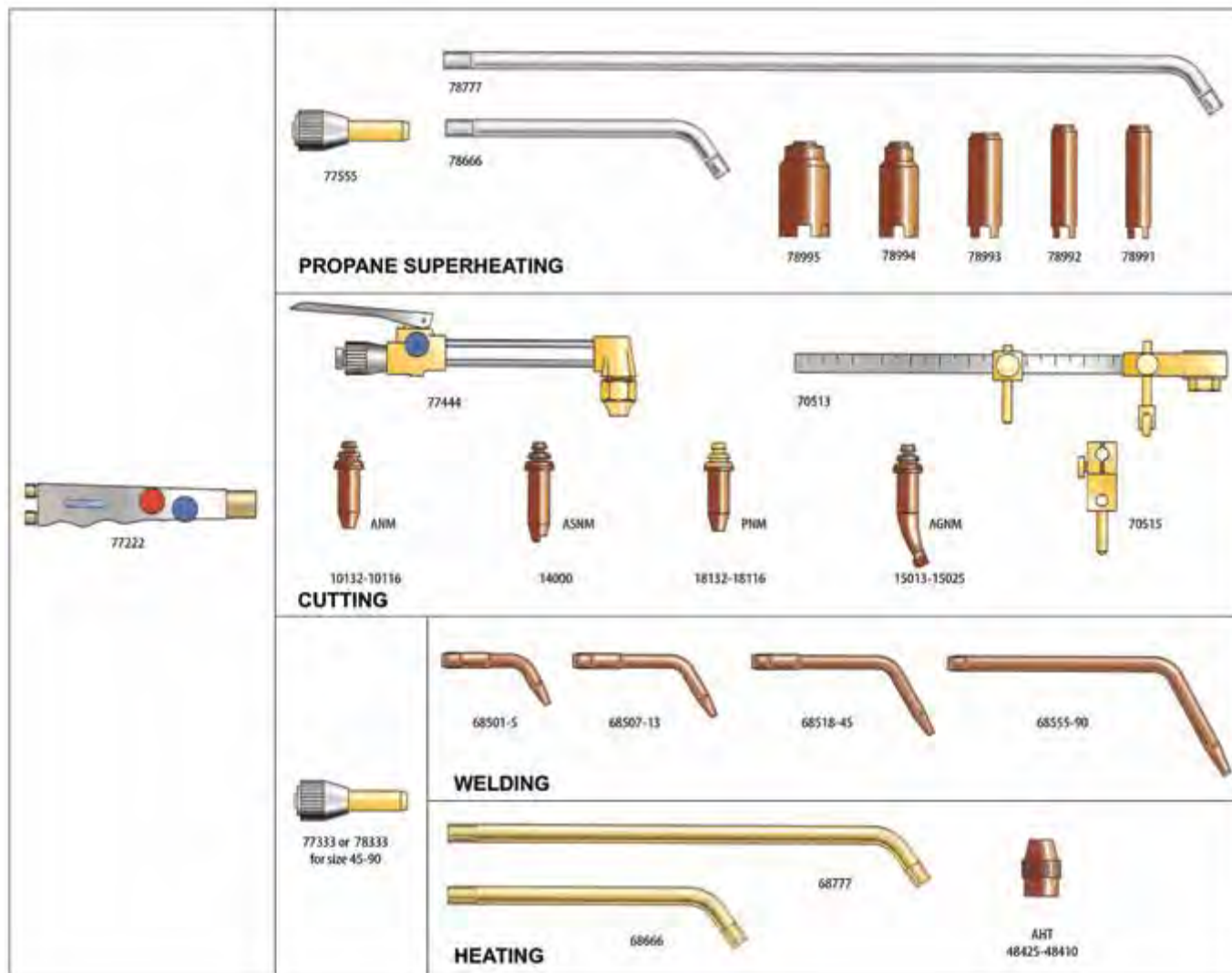
Two superheating necks are available to accommodate the range of five super heating nozzle sizes 1H to 5H which guarantee an immediate and highly intense heat output from 70,000 to 600,000 Btu/h on castings and large articles.

Art. Nr.	Description	Quantity
0766254 (78666)	Superheating 10" neck	1
0766255 (78777)	Superheating 28" neck	1

#### TECHNICAL DATA

Heating Nozzles:	Super Heating Nozzles 1H-5H (1/2" x 25 UNS)
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## TYPICAL ASSEMBLIES - MK3A/4/5 SYSTEM



### MK3A/4/5 COMBINED WELDING & CUTTING OUTFIT



#### CONSISTING OF:

GCE BUTBRO MK3A /4/5 Shank, Mixer & Cutting Attachment, Type 3 Swaged Welding Nozzles Size 2, 5, 7, 10, 13, 18, 25, 1/16" ANM Cutting Nozzle, 3/64" ANM Cutting Nozzle, Nozzle Cleaner Outfit, Headnut Spanner, Data Card, Plastic Carrying Case

Art. Nr.	Description	Quantity
77000	MK3A/4/5 combined welding & cutting outfit	1

### MK3A/4/5 COMPLETE WELDING & CUTTING OUTFIT



#### CONSISTING OF:

GCE BUTBRO MK3A /4/5 Shank, Mixer & Cutting Attachment, Single Stage, 2 Gauge Oxygen Regulator, Single Stage, 2 Gauge Acetylene Regulator, Slimguard Oxygen Flashback Arrestor, Slimguard Acetylene Flashback Arrestor, 5 Metres 1/4" Bore Twin Line Fitted Hose, Type 3 Swaged Welding Nozzles Size 2, 5, 7, 13, 1/16" ANM Cutting Nozzle, Sunfire Spark lighter, Nozzle Cleaner Outfit, Combination Spanner, Spindle Key, Headnut Spanner, Goggles, Data Card, Plastic Carrying Case

Art. Nr.	Description	Quantity
77778FB	MK3A/4/5 complete welding & cutting outfit with flashback arrestor	1

## CUTTING TORCHES AND ACCESSORIES

### UNIVERSAL



88090C 88094C

#### REAR MOUNTED VALVES

GCE BUTBRO cutters are engineered from solid brass stampings with silver soldered joints and provide a lightweight, well balanced, durable cutter giving reliability.

With rear mounted valves and cutting lever and round handle.

Cutter employs the nozzle mix principle, in which the combustible gas mixing is confined to the cutting nozzle. This results in a cutter which is highly resistant to backfire and flashback. A wide range of accessories are available for this cutter, such as attachments for heating, gouging, sheet metal nozzles, circle attachments, spade guide, power attachments, etc., to give maximum possible versatility. GCE BUTBRO torches and nozzles conform to BS EN ISO 5172.

Art. Nr.	Description	Head Angles	Quantity
<b>88090C</b>	18" (460 mm)	90°	1
<b>88092C</b>	18" (460 mm)	180°	1
<b>88094C</b>	27" (700 mm)	75°	1
<b>0764510</b>	33" (850 mm)	90°	1
<b>88098C</b>	36" (900 mm)	180°	1
<b>0764511</b>	45" (1150 mm)	90°	1

#### TECHNICAL DATA

Hose connections:	3/8" BSP (other threads available on request)
Cutting capacity:	300 mm (12")
Cutting nozzles:	ANM (Acetylene) Cutting Nozzles
	PNM (Propane) Cutting Nozzles
	ASNM Sheet Metal Nozzles
	AGNM Gouging Nozzles
	ARCNM Rivet Cutting Nozzles
Gas:	Acetylene or Propane

### STEELMASTER/X511



87090

#### FORWARD MOUNTED VALVES

GCE BUTBRO cutters are engineered from solid brass stampings with silver soldered joints and provide a lightweight, well balanced, durable cutter giving reliability. With forward mounted valves and cutting lever for additional safety and flat handle.

Cutter employs the nozzle mix principle, in which the combustible gas mixing is confined to the cutting nozzle. This results in a cutter which is highly resistant to backfire and flashback. A wide range of accessories are available for this cutter, such as attachments for heating, gouging, sheet metal nozzles, circle attachments, spade guide, power attachments, etc., to give maximum possible versatility. GCE BUTBRO torches and nozzles conform to BS EN ISO 5172.

Art. Nr.	Description	Head Angles	Quantity
<b>0767699 (87090)</b>	18" (460 mm)	90°	1
<b>0767692 (87097)</b>	36" (900 mm)	75°	1
<b>0767690</b>	18" (470 mm)	75°	1
<b>0767696</b>	42" (1080 mm)	75°	1

#### TECHNICAL DATA

Hose connections:	3/8" BSP (other threads available on request)
Cutting capacity:	300 mm (12")
Cutting nozzles:	ANM (Acetylene) Cutting Nozzles
	PNM (Propane) Cutting Nozzles
	ASNM Sheet Metal Nozzles
	AGNM Gouging Nozzles
	ARCNM Rivet Cutting Nozzles
Gas:	Acetylene or Propane

### DOUBLE ROLLER GUIDE



Steady and guide your torch over large plates and forgings. Fits all nozzle-mix cutters using ANM/PNM type nozzles. Fixed by clamping around nozzle thus accommodating either 75 or 90 torch heads.

Art. Nr.	Description	Quantity
<b>70510P</b>	Double roller guide	1

## LARGE CIRCLE CUTTING ATTACHMENT



Cut accurate circles with this versatile attachment. It is adjustable to cut circles from 60 mm (2 1/2") up to 425 (17") Dia.

Art. Nr.	Description	Quantity
70513	Large circle cutting attachment	1

## SMALL CIRCLE CUTTING ATTACHMENT



For cutting smaller diameter circles, clamps to tubes of cutter or cutting attachment.

Art. Nr.	Description	Quantity
70514	Small circle cutting attachment	1

## CUTTER HEAD NUTS

For use with NM250 cutters and type 3/4/5 cutting attachments.

Art. Nr.	Description	Quantity
9427210	Head nut 7/8" * 20 UNS	1

For use with Steelmaster 2 cutters.

Art. Nr.	Description	Quantity
9431350	Head nut M 22 x 1.5	5

## MARK 4 GAS ECONOMISER

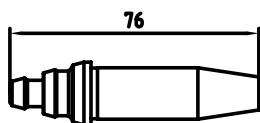


Considerable savings in gas costs can be achieved by the use of a gas economiser in production welding and brazing. The torch is held on the hooked arm when not in use which shuts off gas supply to the torch. When unhooked the torch can be immediately re-ignited from the pilot light without having to re-adjust the valves. 3/8" BSP connections.

Art. Nr.	Description	Quantity
1282575	Mark 4 Gas Economiser	1

## CUTTING NOZZLES

### ANM SHORT PATTERN



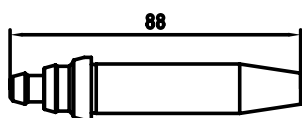
6 heating holes, 76 mm long.

**USE:**

Acetylene fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0768554 (10132)</b>	3 - 6 mm	size 1/32"	1
<b>0768555 (10364)</b>	5 - 12 mm	size 3/64"	1
<b>0768556 (10116)</b>	10 - 75 mm	size 1/16"	1
<b>0768557 (10564)</b>	70 - 100 mm	size 5/64"	1
<b>0768558 (10332)</b>	90 - 150 mm	size 3/32"	1
<b>0768559 (10018)</b>	190 - 300 mm	size 1/8"	1

### ANME LONG PATTERN



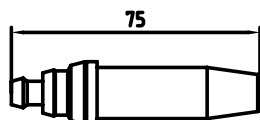
6 heating holes, 88 mm long.

**USE:**

Acetylene fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0768670 (45132)</b>	3 - 6 mm	size 1/32"	1
<b>0768635 (45364)</b>	5 - 12 mm	size 3/64"	1
<b>0768599 (45116)</b>	10 - 75 mm	size 1/16"	1
<b>0768636 (45564)</b>	70 - 100 mm	size 5/64"	1
<b>0768662 (45332)</b>	90 - 150 mm	size 3/32"	1
<b>0768598 (45764)</b>	140 - 200 mm	size 7/64"	1
<b>0769041 (45018)</b>	190 - 300 mm	size 1/8"	1

### PNM SHORT PATTERN



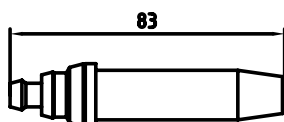
9 spline inner, 76 mm long.

**USE:**

Propane fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0768880 (18132)</b>	3 - 6 mm	size 1/32"	1
<b>0768865 (18364)</b>	5 - 12 mm	size 3/64"	1
<b>0768879 (18116)</b>	10 - 75 mm	size 1/16"	1
<b>0768878 (18564)</b>	70 - 100 mm	size 5/64"	1
<b>0769481 (18332)</b>	90 - 150 mm	size 3/32"	1
<b>0769482 (18018)</b>	190 - 300 mm	size 1/8"	1

### PNME LONG PATTERN



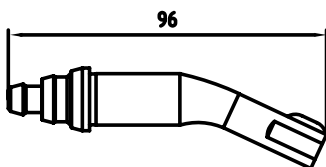
9 spline inner, 88 mm long.

**USE:**

Propane fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0769494 (46132)</b>	3 - 6 mm	size 1/32"	1
<b>0769495 (46364)</b>	5 - 12 mm	size 3/64"	1
<b>0769496 (46116)</b>	10 - 75 mm	size 1/16"	1
<b>0769497 (46564)</b>	70 - 100 mm	size 5/64"	1
<b>0769498 (46332)</b>	90 - 150 mm	size 3/32"	1
<b>0769499 (46764)</b>	140 - 200 mm	size 7/64"	1
<b>0769501 (46018)</b>	190 - 300 mm	size 1/8"	1

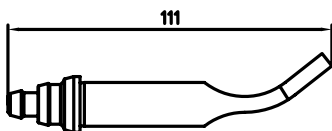
## AGNM GOUGING NOZZLES



94 mm long.  
**USE:**  
 Acetylene fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0768698 (15013)</b>	6 - 8 mm Width × 3 - 9 mm Depth	size 13 - 1/32"	1
<b>0768661 (15019)</b>	8 - 11 mm Width × 6 - 11 mm Depth	size 19 - 3/64"	1
<b>0768699 (15025)</b>	9 - 12 mm Width × 9 - 12 mm Depth	size 25 - 1/16"	1

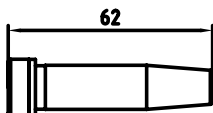
## ARCNM RIVET CUTTING NOZZLE



**USE:**  
 Acetylene fuel gas.

Art. Nr.	Range	Size	Quantity
<b>0769230 (16000)</b>	∅ 50 mm	1/16	1

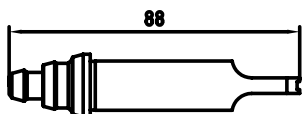
## PHS/VVC MACHINE CUTTING NOZZLES - CHROMED - FOR USE WITH PROPANE



**USE:**  
 Acetylene fuel gas.

Art. Nr.	Size	Cutting thickness	Cutt. oxygen pressure	Cutting speed	Quantity
<b>0769711</b>	5/0	1-4 mm	3 bar	750 mm/min	1
<b>0769712</b>	4/0	4-6 mm	3 bar	700 mm/min	1
<b>0769713</b>	3/0	6-9 mm	5 bar	650 mm/min	1
<b>0769714</b>	00	9-12 mm	6 bar	630 mm/min	1
<b>0769715</b>	0	12-20 mm	7 bar	600 mm/min	1
<b>0769716</b>	0 ½	20-35 mm	7 bar	550 mm/min	1
<b>0769717</b>	1	35-60 mm	7 bar	480 mm/min	1
<b>0769718</b>	1 ½	60-75 mm	7 bar	310 mm/min	1
<b>0769719</b>	2	75-125 mm	7 bar	280 mm/min	1
<b>0769720</b>	2 ½	125-150 mm	6,5 bar	200 mm/min	1
<b>0769721</b>	3	150-175 mm	7 bar	180 mm/min	1
<b>0769722</b>	4	175-200 mm	6,5 bar	180 mm/min	1
<b>0769723</b>	5	200-225 mm	6 bar	150 mm/min	1
<b>0769724</b>	5 ½	225-250 mm	6 bar	130 mm/min	1

## HA311-1 SHEET METAL NOZZLE

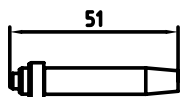


88 mm long.  
 Fuel gas: Acetylene

Art. Nr.	Range	Size	Quantity
<b>0768641</b>	0 - 3 mm	0,3	1

For cutting and setting data see please page xx.

## AFN TYPE (ORBIT) CUTTING NOZZLES



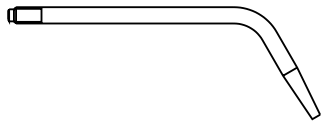
Fuel gas: Acetylene

Art. Nr.	Range	Size	Quantity
<b>0769416</b>	0 - 3 mm	Sheet Metal ASFN	1
<b>0769285</b>	3 - 6 mm	size 1/32"	1
<b>0769287</b>	6 - 20 mm	size 3/64"	1
<b>0768825</b>	20 - 30 mm	size 1/16"	1

For cutting and setting data see please page xx.

## WELDING & HEATING NOZZLES

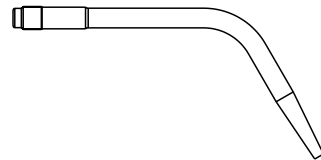
### LIGHTWEIGHT SWAGED COPPER NOZZLES



For use on Orbit torch 1/4" x 26 TPI thread.

Art. Nr.	Range	Size	Quantity
<b>0766232 (62401)</b>	to 1 mm	size 1	1
<b>0766233 (62402)</b>	1 - 1,5 mm	size 2	1
<b>0766234 (62403)</b>	1,5 - 2 mm	size 3	1
<b>0766235 (62405)</b>	2 - 2,5 mm	size 5	1
<b>0766236 (62407)</b>	2,5 - 3 mm	size 7	1
<b>0766237 (62410)</b>	3 - 4 mm	size 10	1
<b>0766238 (62413)</b>	4 - 5 mm	size 13	1
<b>0766239 (62418)</b>	5 - 6 mm	size 18	1
<b>0766240 (62425)</b>	6 - 8 mm	size 25	1

### TYPE 2/3/4/5 SWAGED COPPER TUBE NOZZLES



For use on Type 2/3/4/5 Welding torch 7/16" x 27 TPI Thread (Sizes 1-90 Type 2 & 3), 31/64" x 27 TPI Thread (Sizes 45-90 using Heavy Duty Mixer)

Art. Nr.	Range	Size	Quantity
<b>0766244 (68501)</b>	to 1 mm	size 1	1
<b>0766245 (68502)</b>	1 - 1,5 mm	size 2	1
<b>0766246 (68503)</b>	1,5 - 2 mm	size 3	1
<b>0766247 (68505)</b>	2 - 2,5 mm	size 5	1
<b>0766248 (68507)</b>	2,5 - 3 mm	size 7	1
<b>0766249 (68510)</b>	3 - 4 mm	size 10	1
<b>0766250 (68513)</b>	4 - 5 mm	size 13	1
<b>0766251 (68518)</b>	5 - 6 mm	size 18	1
<b>0766252 (68525)</b>	6 - 8 mm	size 25	1

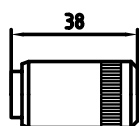
### MODEL 'O' BRASS WELDING TIPS



For use on Model 'O' Torch.

Art. Nr.	Size	Quantity
<b>47100</b>	size 1	1
<b>47200</b>	size 2	1
<b>47300</b>	size 3	1
<b>47400</b>	size 4	1
<b>47500</b>	size 5	1

### AHT HEATING NOZZLES



For use on type 3/4/5 equipment. In conjunction with necks 68777 or 68666.

**USE:**

Acetylene fuel gas.

Art. Nr.	Size	Output	Quantity
<b>48425</b>	AHT 25 heating tip	52 000 Btu/H	1
<b>48450</b>	AHT 50 heating tip	91 000 Btu/H	1
<b>48410</b>	AHT 100 heating tip	139 000 Btu/H	1

## SUPERHEATING NOZZLES

For use on type 3/4/5 blowpipe in conjunction with heavy duty mixer 77555 and necks 78666 or 78777. Can also be used with NM250/Steelmaster in conjunction with superheating adaptor 0768929.

**USE:**

Propane fuel gas.

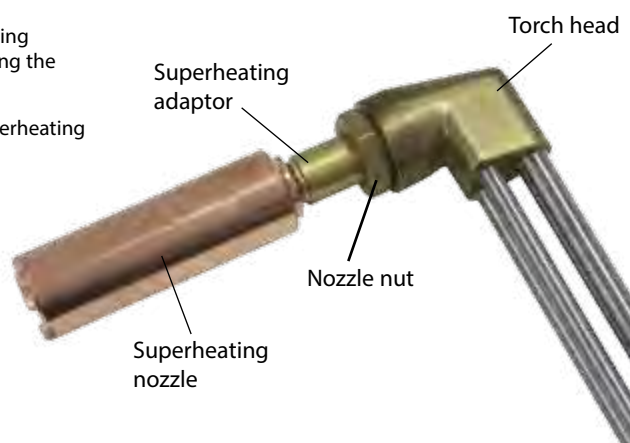


Art. Nr.	Size	Output	Quantity
<b>0769472 (78991)</b>	1H	72 000 - 163 000 Btu/H	1
<b>0769473 (78992)</b>	2H	102 000 - 188 000 Btu/H	1
<b>0769474 (78993)</b>	3H	183 000 - 361 000 Btu/H	1
<b>0769475 (78994)</b>	4H	236 000 - 406 000 Btu/H	1
<b>0769476 (78995)</b>	5H	250 000 - 618 000 Btu/H	1
<b>0768929</b>	Superheating adaptor for NM Cutters		1

### HOW TO FIT A SUPERHEATING ADAPTOR

Place the "three cone end" of the superheating adaptor into the torch head and fasten using the nozzle nut.

Once the adaptor is in place screw the superheating nozzle onto the adaptor.





## WELDING HOSES AND CLIPS

### SINGLE HOSE UNFITTED

A hose which is highly resistant to kinks and abrasion. Conforms to BS ENISO3821 (formerly BS EN559). Working pressure 290 P.S.I., safety factor in excess of 4 to 1. Colour: Blue - Oxygen. Red - Acetylene. Orange - Propane. Supplied in coils of 50 meters.



#### SINGLE HOSE-OXYGEN

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272321006040	Hose-grooved	3,5×6,3 (13,3) mm	50 m
272321311304	Hose-grooved	3,5×8 (15) mm	50 m
272321311306	Hose-grooved	3,5×10 (17) mm	50 m



#### SINGLE HOSE-ACETYLENE

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272321006041	Hose-grooved	3,5×6,3 (13,3) mm	50 m
272321009035	Hose-grooved	3,5×8 (15) mm	50 m
272321311206	Hose-grooved	3,5×10 (17) mm	50 m



#### SINGLE HOSE-PROPANE/BUTANE

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272321063035	Hose-grooved	3×6,3 (13,3) mm	50 m
272321009136	Hose-grooved	3,5×8 (15) mm	50 m
272321311006	Hose-grooved	3,5×10 (17) mm	50 m

### TWIN HOSE UNFITTED



#### TWIN HOSE-OXYGEN/ACETYLENE

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272333166025	Twin hose OX/AC 3,5×6,3×6,3 (13,3+13,3) mm		25 m
272333066617	Twin hose OX/AC 3,5×6,3×6,3 (13,3+13,3) mm		40 m
2723330666100	Twin hose OX/AC 3,5×6,3×6,3 (13,3+13,3) mm		100 m
272333088100	Twin hose OX/AC 3,5×8×8 (15+15) mm		100 m
272312727025	Twin hose OX/AC 3,0×10×10 (16+16) mm		25 m
272333110081	Twin hose OX/AC 3,0×10×10 (16+16) mm		40 m

## FITTED HOSE CONFORMING TO BS ENISO3821 & BS EN1256 WITH CHECK VALVE, NUT & TAIL PIECE



### SINGLE HOSE-OXYGEN

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
841068	6,3x3,5 (6x13) mm	G 3/8 - G 3/8 NRV	10 m
841089	8x3,5 (8x15) mm	G 3/8 - G 3/8 NRV	10 m
841109	10x3,5 (10x17) mm	G 3/8 - G 3/8 NRV	10 m



### SINGLE HOSE-ACETYLENE

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849068	6,3x3,5 (6x13) mm	G 3/8LH - G 3/8LH NRV	10 m
849089	8x3,5 (8x15) mm	G 3/8LH - G 3/8LH NRV	10 m
849109	10x3,5 (10x17) mm	G 3/8LH - G 3/8LH NRV	10 m



### SINGLE HOSE-PROPANE/BUTANE

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849114	6,3x3,5 (6x13) mm	G 3/8LH - G 3/8LH	10 m
849117	8x3,5 (8x15) mm	G 3/8LH - G 3/8LH NRV	10 m
849120	10x3,5 (10x17) mm	G 3/8LH - G 3/8LH NRV	10 m

NRV = non return valve included

## TWIN HOSE FITTED



NRV = non return valve included

### TWIN HOSE OXYGEN/ACETYLENE

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849060	6,3x3,5-6,3x3,5 (6x13) mm	G 3/8LH - RH G 1/4LH - RH NRV	5 m
841080	8x3,5-8x3,5 (8x15) mm	G 3/8 LH - RH G 3/8 - RH NRV	5 m
841081	8x3,5-8x3,5 (8x15) mm	G 3/8 LH - RH G 3/8 - RH NRV	10 m

## HOSE CLIPS



### MUJ-FIT

Art. Nr.	Description	Hoses	Quantity
WP24020	MUJ-FIT 13(one ear)	6x13; 6x14 mm	20
WP24022	MUJ-FIT 15(one ear)	8x15; 8x16 mm	20



### OETIKER

Art. Nr.	Description	Hoses	Quantity
90330	Oetiker(two ear) 13-15	6x13; 6x14 mm	20
90340	Oetiker(two ear) 15-18	8x15; 8x16 mm	20



### JUBILEE

Art. Nr.	Description	Hoses	Quantity
C1000046	Jubilee (screwdriver)8-12	5x12 - 6x13; 6x14 mm	20
C1000047	Jubilee (screwdriver)10-16	8x15; 8x16 mm	20

Art. Nr.	Description	Hoses	Quantity
WP90352	Jubilee (screwdriver)12-22	-	20
WP24024	O clip pincers	-	1

## SAFETY CURTAINS / WELDING SCREENS



A portable free standing screen enabling the welding area to be enclosed thus protecting the surrounding workspace from the effects of glare and spatter. Constructed from green/red translucent PVC. This material complies with EN 1598 and is both UV stabilised and self extinguishing. Overall size - 6'x6' (Curtain: 5'9"x5'3").

Art. Nr.	Description	Size	Colour
55440TC	Portable welding screen	6'x6'	Green/red

## HOSE CONNECTION AND FITTINGS

### HOSE TAILPIECES



Art. Nr.	Hose inner diameter	Suitable for nut	Pack size
<b>31AEN</b>	5 mm (3/16")	G 3/8" LH and RH	5
<b>B599380 (31BEN)</b>	6 mm (1/4")	G 1/4" LH and RH	1
<b>B734980 (31EN)</b>	6 mm (1/4")	G 3/8" LH and RH	1
<b>32DB</b>	6 mm (1/4")	9/16"×18 TPI LH and RH	1
<b>B599440 (30EN)</b>	8 mm (5/16")	G 3/8" LH and RH	5
<b>9430800 (29AEN)</b>	10 mm (3/8")	G 3/8" LH and RH	1

### HOSE SPLICERS



Art. Nr.	Hose inner diameter	Pack size
<b>16</b>	8 mm (5/16")	1

### HOSE CONNECTION NUTS



Art. Nr.	Type	Pack size
<b>B599400 (28AENP)</b>	G 1/4" RH	5
<b>B712010 (27AEN)</b>	G 3/8" RH	1
<b>B712020 (28BEN)</b>	G 1/4" LH	1
<b>B599430 (27BENP)</b>	G 3/8" LH	5

### HOSE COUPLERS



Art. Nr.	Type	Pack size
<b>25A</b>	G 1/4" equal RH	1
<b>26A</b>	G 3/8" × G 1/4" unequal RH	1
<b>24A</b>	G 3/8" equal RH	1
<b>25B</b>	G 1/4" equal LH	1
<b>26B</b>	G 3/8" × G 1/4" unequal LH	1
<b>24B</b>	G 3/8" equal LH	1

## LOW PRESSURE FINE ADJUSTMENT VALVES AND ADAPTORS(10 BAR)

### TWIN OUTLET VALVES WITH SWIVEL NUT ("Y" VALVES)



These allow two blowpipes to be used from one regulator outlet.

Art. Nr.	Gas	Swivel nut	Outlet connection
<b>47A</b>	Oxygen	G 3/8" RH	G 3/8" RH MALE
<b>47B</b>	Acetylene	G 3/8" LH	G 3/8" LH MALE

### 'Y' PIECES, 'T' PIECES FOR BRANCHING TWO HOSE FROM ONE



Art. Nr.	Gas	Type
<b>66A</b>	'T' piece with G 3/8" RH/LH nuts and 10 mm nipples	RH
<b>66B</b>	'T' piece with G 3/8" LH nuts and 10 mm nipples	LH

66A

## CYLINDER VALVES

### CYLINDER VALVES



Industrial valves are manufactured to EN 849. Medical pin index valves are manufactured to EN 850 and are CE marked. All industrial valves are handwheel operated, supplied in boxes of 20.

Art. Nr.	Type	Gas	Service Inlet (bar)		Outlet	Finish	Resid. press.
0777320	Industrial	Acetylene	25	25E	(BS4) G 5/8 LH	Brass	
0765726	Industrial	Ar/N <sub>2</sub> -CO <sub>2</sub>	230	25E	(BS3) G 5/8	Brass	
0765572	Industrial*	CO <sub>2</sub>	190	25E	(BS8) W 21,8	Brass	yes
0765725	Industrial*	CO <sub>2</sub>	190	25E	(BS8) W 21,8	Brass	
0775112	Industrial	H <sub>2</sub> /Mixes	300	25E	(BS4) G 5/8 LH	Brass	
0775049	Industrial	Helium	230	25E	(BS3) G 5/8	Brass	
0777330	Industrial	Oxygen	230	25E	(BS3) G 5/8	Brass	
0765389	Pin index	Air	200	25E	Air pin	Chromed	
0775535	Pin index	Air	200	M 18	Air pin	Chromed	
0765414	Pin index	Entonox	200	18T (0.715)	Entonox pin	Chromed	
0765340	Pin index	Oxygen	200	17E	Oxy pin	Chromed	
0765397	Pin index	Oxygen	200	18T (0.715)	Oxy pin	Chromed	
0765339	Pin index	Oxygen	200	25E	Oxy pin	Chromed	
0775467	Pin index	Oxygen	200	M 18	Oxy pin	Chromed	
9430000	Burst disc*	CO <sub>2</sub>	190			Monel	(1)

\* Burst Disc - 190 bar

(1) 0765572/0765725

### CYLINDER TROLLEYS



Perfectly balanced trolleys of welded steel construction with solid tyres and safety retaining chains/bars. Two models available for large and small cylinders.

Art. Nr.	Description
86001	Large twin oxy acetylene cylinder trolley (accepts cylinder Ø 240mm × 310mm max)
9431380	Small caddypak cylinder trolley (accepts cylinder Ø 175mm × 175mm max)

## GENERAL SAFETY PRECAUTIONS AND RECOMMENDED PROCEDURES

### GCE BUTBRO RUBBER HOSE

Use only hose in good condition, fitted with special hose connections attached by permanent ferrules. Do not expose the hose to heat, traffic, slag and sparks from welding and cutting operations, oil or grease. Scrap it as soon as it becomes leaky. Good hose will re-pay the cost many times by long life, safe operation and elimination of waste through leaks.

### GCE BUTBRO PRESSURE REGULATORS

Always treat a regulator as a precision instrument. Do not expose it to knocks, jars or violent pressure caused by the sudden opening of the cylinder valve. Release the pressure on the control spring when shutting down.

Never use the regulator on any gas except for that for which it was designed do not use regulator with broken gauges.

Never use oil or grease.

### GCE BUTBRO BLOW PIPES / CUTTERS

For lighting up and extinguishing any type of blow pipe the maker's instructions should always be followed. To clean the nozzle, use the manufacturer's nozzle cleaner set.

### GCE BUTBRO GOGGLES

Goggles should be worn at all times when welding and cutting.

### ASSEMBLY OF EQUIPMENT

1. Stand both both cylinders vertical. Oxygen cylinders are painted black. Acetylene are painted maroon, and propane cylinders are painted red.

2. See that joining surfaces in cylinder valves and regulators are free from oil and grease.

3. Open the valve on the oxygen cylinder momentarily in order to sniff the cylinder valve, dislodging dirt or obstructions, close valve.

4. Open a fuel gas cylinder valve as in item 3.

5. Check pressure rating on regulator is suitable for cylinder in use. Screw the oxygen regulator in to the oxygen cylinder valve. The cylinder valve and the regulator inlet stem, and the regulator outlet connection have a right hand screw thread.

6. Screw the fuel gas regulator in to the gas cylinder valve. The cylinder valve, the regulator inlet and the regulator outlet have left hand screw thread.

7. Tighten the regulator in to the cylinder valve Do not use excessive force, but make certain that the joints are gas tight.

8. Connect the hose to the screwed outlets of the regulator by means of screw connections secured in the ends of the hose.

Blow the hose through before attaching to regulator or to the blow pipe in order to remove dust or dirt, or chalk when the hose is new.

### OXYGEN MUST NOT BE USED FOR THIS PURPOSE.

9. Connect the other ends of the hose, that fitted with a hose check valve; to the blow pipe, the fuel gas hose to the left hand connections, the oxygen hose to the right hand connection. Keep the blow pipe control valves closed.

10. Fit the appropriate sized nozzle to the blow pipe.

To obtain best possible results from GCE BUTBRO blow pipes always use GCE BUTBRO precision nozzles.

### LIGHTNING UP PROCEDURE WELDING BLOW PIPES

11. Open the cylinder valve slowly by means of the cylinder key. Do not open suddenly or there may be serious damage to the regulator and the possibility of an accident. Open the cylinder valve spindle one turn only. Open the fuel gas control valve on the blowpipe and adjust the regulator to give the correct working pressure (this ensures that any air or oxygen is purged from the hose). Repeat the above procedure for the oxygen side.

12A. Open the fuel gas control valve and light gas

preferably by means of a GCE BUTBRO spark light making sure that the spark lighter is held at right angles to the nozzle.

12B. Reduce or increase the acetylene supply to the blow pipe valve until the flame just ceases to smoke.

12C. Slowly turn on the oxygen by the blow pipe control valve until the white inner cone in the flame is sharply defined with the merest trace of an acetylene haze. The blow pipe is now correctly adjusted for welding.

### CUTTING BLOW PIPES

A. Proceed with assembly of the equipment exactly as outlined for the welding equipment, but remember the following points.

B. After fitting the correct size cutting nozzle, open the cylinder valves and after purging both hoses set the working oxygen pressure on the regulator with the oxygen passing through the cutting oxygen valve on the cutter, hence out through the nozzle. Shut all the valves on the blow pipe, open the fuel gas valve slowly and ignite the gas. Open the heating oxygen valve on the cutter slowly, and adjust the flame to neutral. Now depress the cutting oxygen lever and again adjust the heating gas controls to give a neutral flame. Depress the cutting oxygen lever, and the cutter is ready for use. These instructions apply to the nozzle mix type cutters since these are of the most modern design.

C. When cutting with a combined welding/cutting torch, the oxygen valve on the shank should remain fully open and all adjustments to the oxygens stream made with the oxygen valve on the cutting attachment, as detailed in (B above).

### CLOSING DOWN PROCEDURE

#### 13A WELDING EQUIPMENT

Turn off the acetylene first by the blow pipe control valve and then the oxygen. Close the cylinder valve. Open the blow pipe valves one at a time to release the pressure in the hose, i.e. open the oxygen valve and close it; open the fuel gas valve and close it. Unscrew the pressure regulating screws on the oxygen and acetylene regulators.

#### 13B. CUTTING BLOW PIPES

On completion of the work, close the oxygen cutting valve, then the fuel gas and heating oxygen valves. Close the cylinder valves, open and close the cutter, oxygen and fuel gas valves one at a time to release pressure in the hose, unscrew the pressure regulating screws on the oxygen and acetylene regulators.

14. It is most important to emphasise the earlier instructions, that prior to re-lighting either the welding blow pipe or the cutter, the hoses must be purged to ensure a pure and adequate supply of oxygen/fuel gas. Back-fires may occur by one of a combination of circumstances, e.g. defective equipment, incorrect gas pressures, incorrect lighting-up procedure or careless handling of the blow pipe in use, such as permitting the nozzle to touch the work, overheating the tip of the nozzle, or working with a loose nozzle. Usually the back-fire is arrested at the injector in case of low pressure equipment or the source where the gases are mixed, e.g. the head of the cutting blowpipe, and if prompt action is taken in turning off first the oxygen, and then the blowpipe may be re-lit as soon as the cause of the trouble has been eliminated.

In some cases, however, a back-fire may pass beyond the torch and go back into either the oxygen or the fuel gas hoses; it is then termed a 'flash-back' and its effect is more serious in that it may result in immediate damage to hoses and regulators. In extreme cases there is also a possibility of injury to the operator. The outward signs of flash-back may be squealing or hissing noise, sparks coming out of the nozzle; heavy black smoke; or the blowpipe handle may get hot. If the flame burns back far enough it may even burst through the hose.

Both blow-backs and flash-backs can be avoided by adherence to recommended procedure in the case of

equipment. Investigation shows that such occurrences often occur purely through overfamiliarity leading

eventually to neglect of ordinary safeguards.

For example, the blowpipe settings, or a light being applied before the flow of fuel gas is properly established.

### IF THE FLAME SNAPS OUT WHEN THE BLOW PIPE IS IN USE IT IS BECAUSE:

A. The regulator pressure, and/or gas flow, are incorrect - either too high or too low.

B. The nozzle has been obstructed.

C. The nozzle is held too close to the work.

D. The nozzle has become overheated.

When this happens completely shut both the blowpipe valves, check the regulator setting, cylinder pressures, and re-light in accordance with the procedure. In the case of 'D', close the acetylene valve, reduce oxygen flow to a trickle, and plunge the nozzle and head into cold water.

### GCE BUTBRO HOSE CHECK VALVES

The hose check valve is a safeguard which will operate independently and without attention from the operator. The device is essentially a non-return valve, the purpose of which is to prevent back feeding or the reverse flow of gases. It must in all cases be fitted to the inlet connections of the blowpipe.

### GCE BUTBRO FLASHBACK ARRESTORS

The GCE BUTBRO flashback arrestor is a device to be fitted in the system to protect the upstream equipment. GCE BUTBRO flashback arrestors can be mounted to regulators, in line or to torches depending on the application. The flashback arrestor will contain between 1 and 5 features, depending on its specification.

**FA** Sintered flame arresting element to put out the flame.

**NV** Non return valve to prevent the reverse flow of gases.

**PV** Pressure trip device to temporarily shut off gas supply. The device can be reset after the problem is corrected.

**TV** Thermal trip device - to permanently shut off gas supply in the case of overheating.

**SI** Status indicator shows if the unit is ready for use.



## WELDING, CUTTING & HEATING DATA

### WELDING / ORBIT & MK 3/A TORCHES

Mid Steel T <sub>k</sub> 'ness mm in	Nozzle size	Operating pressure				Gas consumption				
		Acetylene		Oxygen		Acetylene		Oxygen		
		bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	
0,9	20	1	0,14	2	0,14	2	28	1	28	1
1,2	18	2	0,14	2	0,14	2	57	1	57	2
2	14	3	0,14	2	0,14	2	86	3	86	3
2,6	12	5	0,14	2	0,14	2	140	5	140	5
3,2	1/8 10	7	0,14	2	0,14	2	200	7	200	7
4	5/32 8	10	0,21	3	0,21	3	280	10	280	10
5	3/16 6	13	0,28	4	0,28	4	370	13	370	13
6,5	1/4 3	18	0,28	4	0,28	4	520	18	520	18
8,2	5/16 0	25	0,42	6	0,42	6	710	25	710	25
10	3/8 4/0	35	0,63	9	0,63	9	1000	35	1000	35
13	1/2 7/0	45	0,35	5	0,35	5	1300	45	1300	45
25	1+	90	0,63	9	0,63	9	2500	90	2500	90

### FLAME CLEANING - MK 3/A TORCHES

Acetylene fuel gas Nozzle Type	Fuel gas pressure		Oxygen pressure		Fuel gas consum.		Oxygen consum.	
	bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h
50 mm flat	0,49	7	0,57	8	1050	37	1200	41
100 mm flat	0,7	10	0,7	10	2000	70	2200	78
150 mm flat	0,85	12	0,85	12	2700	94	3000	104

### SUPER HEATING - PROPANE

#### - MK 3/A & SUPER HEATING TORCHES

The flame size and heat output of these nozzles varies considerably with the pressure settings used. Two typical alternatives are given for each size of nozzle.

Nozzle Type	Propane pres.		Oxygen pres.		Propane cons.		Oxygen cons.		Heat output (app.)	
	bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	W	Btu/h
1H	0,14	2	0,7	10	830	29	350	121	244800	72000
	0,49	7	2,1	30	1900	65	7300	255	554200	163000
2H	0,21	3	1,1	15	1200	41	4800	168	348800	102000
	0,46	8	2,5	35	2100	75	8700	304	639200	188000
3H	0,28	4	1,8	25	2100	75	8300	290	622200	183000
	1,1	15	5,0	70	4100	144	16500	575	1227400	361000
4H	0,35	5	2,5	35	2700	94	10600	370	802400	236000
	1,3	18	5,7	80	4800	162	18800	650	1380400	406000
5H	0,85	12	3,5	50	3200	112	12700	444	955400	281000
	2,1	30	8,7	125	7000	246	28000	964	2101200	618000

### HEATING - ACETYLENE - MK 3/A TORCH (AHT NOZZLES)

Nozzle Type	Propane pres.		Oxygen pres.		Propane cons.		Oxygen cons.		Heat output (app.)	
	bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	W	Btu/h
A-HT25	0,14	2	0,7	10	830	29	350	121	176800	57000
A-HT50	0,49	7	2,1	30	1900	65	7300	255	309400	91000
A-HT100	2,1	30	8,7	125	7000	246	28000	964	472600	139000

### CUTTING - ACETYLENE - ORBIT TORCH

Material	T <sub>k</sub> 'ness mm in	Nozzle size	Operating pressure				Gas consumption				Approx. Cutting Speeds mm/m in/m			
			Oxygen		Acetylene		Cutting Ox		Heating Ox			Acetylene		
			bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h
3	1/8	S/M	2,1	30	0,3	4	650	30	120	4,5	220	8	110	4
6	1/4	1/32	2,1	30	0,15	2	710	25	255	9	255	8	255	8
20	3/4	3/64	2,1	30	0,15	2	1415	50	255	9	225	8	225	8
25	1	1/16	3,8	55	0,15	2	3400	120	255	9	225	8	225	8
50	2	1/16	5,3	75	0,20	3	4530	60	310	11	285	10	285	10

### CUTTING - ACETYLENE - MK 3/A & 18/90 CUTTERS (ANM NOZZLES)

Material	T <sub>k</sub> 'ness mm in	Nozzle size	Operating pressure				Gas consumption				Approx. Cutting Speeds mm/m in/m			
			Oxygen		Acetylene		Cutting Ox		Heating Ox			Acetylene		
			bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h
Sheet		ASNM	1,5	20	0,14	2	800	28	85	3	85	3	-	-
6	1/4	1/32	1,8	25	0,14	2	800	28	480	15	400	14	510	20
13	1/2	3/64	2,1	30	0,21	3	1900	67	570	20	510	18	480	19
25	1	1/16	2,8	40	0,14	2	4000	140	540	19	470	17	400	16
50	2	1/16	3,2/3,5	45/50	0,14	2	4500	160	620	22	560	19	300	12
75	3	1/16	3,5/4,2	50/60	0,14	2	4800	170	680	24	620	22	205	8
100	4	5/64	3,2/4,8	45/70	0,14	2	6800	240	850	30	790	27	150	6
150	6	3/32	3,2/5,5	45/80	0,21	3	9400	330	960	34	850	30	125	5
200	8	1/8	4,2	60	0,28	4	14800	510	1380	48	1250	44	100	4
250	10	1/8	5,3	75	0,28	4	31500	760	1560	55	1420	50	75	3
300	12	1/8	6,3	90	0,28	4	25000	880	1560	55	1420	50	50	2

### GOUGING - MK 3/A & 18/90 CUTTERS (AGNM NOZZLES)

Material	T <sub>k</sub> 'ness mm in	Nozzle size	Operating pressure				Gas consumption				Approx. Cutting Speeds mm/m in/m			
			Oxygen		Acetylene		Cutting Ox		Heating Ox			Acetylene		
			bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h
8	5/16	13	4,0	60	0,5	7	3680	130	990	35	905	32	610	24
11	7/16	19	5,0	75	0,5	7	9340	330	1870	66	1700	60	1970	42
12	1/2	25	5,5	85	0,55	8	16270	575	2290	81	2100	74	1220	48

### CUTTING - PROPANE - MK 3/A & 18/90 CUTTERS (PNM NOZZLES)

Material	T <sub>k</sub> 'ness mm in	Nozzle size	Operating pressure				Gas consumption				Approx. Cutting Speeds mm/m in/m			
			Oxygen		Acetylene		Cutting Ox		Heating Ox			Acetylene		
			bar	PSI	bar	PSI	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h	l/h	ft <sup>3</sup> /h
6	1/4	1/32	2,1	30	0,2	3	1000	36	1300	48	300	12	430	17
13	1/2	3/64	2,1	30	0,2	3	1800	65	1600	57	300	14	360	14
25	1	1/16	2,8	40	0,2	3	3000	140	1700	62	400	15	280	11
50	2	1/16	3,2	45	0,3	4	4500	160	1800	66	400	16	205	8
75	3	1/16	3,5	50	0,3	4	4800	170	2000	73	500	18	205	8
100	4	5/64	3,5	50	0,3	4	7300	260	2600	93	600	23	152	6
150	6	3/32	4,2	60	0,4	6	12300	435	3300	120	800	30	125	5
250	10	1/8	5,6	80	0,6	8	22300	790	4600	165	1100	42	50	2
300	12	1/8	6,7	95	0,8	8	26300	930	5900	210	1400	50	50	2

1. Data is for guidance only and may vary with operating conditions, materials etc.
2. Gas pressures are shown in BAR- 1 bar - 1 kg cm<sup>2</sup> 1 PSI - 0,069 bar.
3. Gas consumption in LITRES PER HOUR (l/h).





**PROPALINE**



## UNIVERSAL AIR PROPANE EQUIPMENT

Ideal for plumbing, heating, and ventilation trades, the GCE BUTBRO air propane shank has adjustable pilot flame and 3/8" BSP inlet. 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 WITH GAS SAVER UNIVERSAL



Combined shut-off valve and adjusting knob.

**USE:**

designed for use with soldering, brazing and heating torches UNIVERSAL

Art. Nr.	Torch, tube connection	Quantity
0763216	M14 × 1	1

**TECHNICAL DATA**

Working pressure:	up to 4 bar
Adjustable pilot flame	
Capacity:	12 kg/h
Length:	195 mm
Weight:	0,36 kg
Gas:	PB
Hose connection:	G 3/8" LH

### PAINT REMOVER FAN BURNER UNIVERSAL



**USE:**

for removing old work and localised heating.

Art. Nr.	Connection	Quantity
23705	M14 × 1	1

**TECHNICAL DATA**

Working pressure:	1,5 - 2,0 bar
Consumption PB:	220 g/h
Output:	2,83 kW
Length/width:	170/40 mm
Weight:	0,19 kg

### SOLDERING TORCH B-UNIVERSAL



**USE:**

for soldering and brazing; for point heating.

Art. Nr.	Connection	Type	Quantity
0763222	M14 × 1	B-3 mm	1
0763223	M14 × 1	B-5 mm	1
0763224	M14 × 1	B-7 mm	1

**TECHNICAL DATA**

	B-3 mm	B-5 mm	B-7 mm
Working pressure:	1,5 - 2,5 bar	1,5 - 2,5 bar	1,5 - 2,5 bar
Consumption PB:	30 - 39 g/h	54 - 66 g/h	162 - 210 g/h
Output:	0,39 - 0,50 kW/h	0,69 - 0,85 kW/h	2,08 - 2,70 kW/h
Length:	120 mm	120 mm	138 mm
Weight:	0,09 kg	0,09 kg	0,11 kg
Gas:	P, PB	P, PB	P, PB

## BRAZING TORCH TURBO-UNIVERSAL



### USE:

for soldering and brazing, especially of copper piping systems.

Art. Nr.	Connection	Type	Quantity
0763225	M14 × 1	T Ø12	1
0763226	M14 × 1	T Ø14	1
0763227	M14 × 1	T Ø17	1
0763228	M14 × 1	T Ø20	1

### TECHNICAL DATA

	T Ø12	T Ø14	T Ø17	T Ø20
Working pressure:	1,5 - 2,5 bar	1,5 - 2,5 bar	1,5 - 2,5 bar	1,5 - 2,5 bar
Consumption PB:	63 - 112 g/h	210 - 338 g/h	272 - 384 g/h	440 - 550 g/h
Output:	0,81 - 1,44 kW	2,70 - 4,35 kW	3,50 - 4,94 kW	5,66 - 7,08 kW
Length:	155 mm	178 mm	184 mm	190 mm
Weight:	0,13 kg	0,15 kg	0,17 kg	0,19 kg
Gas:	P, PB	P, PB	P, PB	P, PB
For copper pipe:	12 mm	18 mm	22 mm	28 mm

## HEATING TORCH GT-UNIVERSAL



GT 1/2"



GT 1"

### USE:

for heating of pipes 1/2" or 1"; for pipe soldering and brazing jobs; preheating before tube bending. Use with neck tube.

Art. Nr.	Connection	Quantity
9420060	GT 1/2"	1
9420050	GT 1"	1

### TECHNICAL DATA

	GT 1/2"	GT 1"
Working pressure:	1,5 - 2,0 bar	1,5 - 2,0 bar
Consumption PB:	350 g/h	450 g/h
Output:	4,50 kW	5,79 kW
Length:	190 mm	190 mm
Weight:	0,20 kg	0,24 kg
Gas:	P, PB	P, PB

## SHRINKWRAP TORCH S-UNIVERSAL



### USE:

available in two sizes for shrinkwrapping.

Art. Nr.	Connection	Quantity
32003	S - 30 mm	1
33670	S - 40 mm	1

### TECHNICAL DATA

	S - 30 mm	S - 40 mm
Working pressure:	1,5 bar	1,5 bar
Consumption PB:	1 900 g/h	2 500 g/h

## HEATING TORCH H-UNIVERSAL



### USE:

for industrial heating; roofing and construction work. Use with neck tube.

M20×1

Art. Nr.	Type	Quantity
0763217	30 mm	1
0763218	40 mm	1
4069	45 mm	1
0763219	50 mm	1
0763220	60 mm	1
0763221	80 mm	1

### TECHNICAL DATA

	H Ø30	H Ø40	H Ø45
Working pressure:	1,0 - 4,0 bar	1,0 - 4,0 bar	1,0 - 4,0 bar
Consumption PB:	664 - 1056 g/h	1200 - 1902 g/h	2500 - 5300 g/h
Output:	8,55 - 13,59 kW	15,44 - 24,48 kW	37,9 - 76,2 kW
Length:	88 mm	90 mm	100 mm
Weight:	0,12 kg	0,21 kg	0,25 kg
Gas:	P, PB	P, PB	P, PB

	H Ø50	H Ø60	H Ø60
Working pressure:	1,0 - 4,0 bar	1,0 - 4,0 bar	1,0 - 4,0 bar
Consumption PB:	3780 - 7590 g/h	5030 - 9744 g/h	5650 - 10570 g/h
Output:	48,68 - 97,69 kW	64,74 - 125,41 kW	72,72 - 136,04 kW
Length:	115 mm	125 mm	155 mm
Weight:	0,30 kg	0,34 kg	0,63 kg
Gas:	P, PB	P, PB	P, PB

## NECK TUBE UNIVERSAL



Manufactured in stainless steel.

### USE:

designed to connect UNIVERSAL heating torches to shank UNIVERSAL. Head connection M 20×1 MALE. Torch connection M 14×1 FEMALE.

Art. Nr.	Type	Connection	Weight	Quantity
9381280	75 mm	M14 × 1	0,11 kg	1
9381290	130 mm	M14 × 1	0,11 kg	1
9381300	230 mm	M14 × 1	0,14 kg	1
9381310	350 mm	M14 × 1	0,19 kg	1
9381320	600 mm	M14 × 1	0,29 kg	1
9381330	750 mm	M14 × 1	0,35 kg	1
9381340	1000 mm	M14 × 1	0,44 kg	1

## SUPPORT H-UNIVERSAL

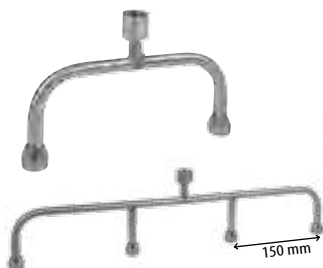


### USE:

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

Art. Nr.	Weight	Quantity
12476	0,15 kg	1

## MULTI-NECK TUBES



**USE:**  
designed to connect UNIVERSAL heating torches to the neck tube.

Art. Nr.	Type	Connection	Width	Weight	Quantity
0763232	2 outlets	M20 × 1	150 mm	0,14 kg	1
0763233	4 outlets	M20 × 1	450 mm	0,29 kg	1

## SOLDERING TORCH KIT UNIVERSAL



**USE:**  
for WT soldering iron UNIVERSAL.

Art. Nr.	Connection	Quantity
2527	M14 × 1	1

### TECHNICAL DATA

Working pressure:	1,5 bar
Consumption PB:	120 g/h
Output:	110 kW
Length:	140 mm
Weight:	0,19 kg
Gas:	P, PB

## SOLDERING IRON UNIVERSAL



**USE:**  
for soldering jobs and roof making. The soldering iron weight is 350g.

Art. Nr.	Connection	Quantity
2543	M14 × 1	1

### TECHNICAL DATA

Working pressure:	1,5 bar
Consumption PB:	120 g/h
Output:	1,55 kW
Length:	140 mm
Weight:	0,64 kg
Gas:	P, PB

## SETS UNIVERSAL PROPALINE



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

Art. Nr.	Description	Quantity
0763248	Propaline 1	1



**CONTENT:**  
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.

Art. Nr.	Description	Quantity
0763249	Propaline 2	1



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

Art. Nr.	Description	Quantity
0763250	Propaline 3	1



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

Art. Nr.	Description	Quantity
0763257	Propaline 4	1



**CONTENT:**

Shank with a gas saver, heating torch H50, neck tube 600 mm, hose nipple, nut G 3/8" LH.

Art. Nr.	Description	Quantity
0763258	Propaline 5	1



**CONTENT:**

Shank with a gas saver, heating torch H30, neck tube 75 mm, hose nipple, nut G 3/8" LH, lighter.

Art. Nr.	Description	Quantity
0763256	Propaline 6	1

**SET UNIVERSAL ROOFER**



**CONTENT:**

Shank with a gas saver, heating torch H60, neck tube 600 mm, PB hose fitted 5m, DN 6,3. Without regulator.

Art. Nr.	Description	Quantity
0764262	UNIVERSAL Roofer (steel)	1

**SHANK EUROMAT**



Piezoelectronic ignition. Torch can be revolved in the shank in 360 degrees. Swiveling hoseconnection. Arresting the control lever of incoming gas valve in the working position. Integrated foldup stand.

**USE:**

the shank is used with soldering and brazing EUROMAT torches.

Art. Nr.	Description	Quantity
3046	Shank	1

**TECHNICAL DATA**

Working pressure:	up to 4 bar
Length:	180 mm
Weight:	0,33 kg
Gas:	P, PB
Hose connection:	G 3/8" LH

**BRAZING TORCH TT TURBO-EUROMAT**



Piezoelectronic ignition.

**USE:**

for soldering and brazing jobs, especially of copper pipes.

Art. Nr.	ø	Consumption	Output	Length	Quantity
17178	13 mm	110 g/h	1,43 kW/h	180 mm	1
17186	15 mm	180 g/h	1,55 kW/h	180 mm	1
17202	17 mm	320 g/h	2,86 kW/h	185 mm	1
17210	19 mm	415 g/h	4,89 kW/h	185 mm	1
17228	22 mm	510 g/h	6,58 kW/h	190 mm	1

**TECHNICAL DATA**

Working pressure:	1,5 - 2,0 bar
Gas:	P, PB

## SOLDERING TORCH PT-EUROMAT



**USE:** for soldering, brazing and point heating.

Art. Nr.	∅	Consumption	Output	Length	Quantity
17129	3 mm	41 g/h	0,53 kW/h	180 mm	1
17137	5 mm	120 g/h	1,55 kW/h	180 mm	1
17145	7 mm	222 g/h	2,86 kW/h	185 mm	1
17152	9 mm	380 g/h	4,89 kW/h	185 mm	1
17160	11mm	511 g/h	6,58 kW/h	190 mm	1

### TECHNICAL DATA

Working pressure: 1,5 - 2,0 bar

Gas: P, PB

## SHRINK TORCH EUROMAT



Art. Nr.	Type (∅)	Consumption	Output	Lenhgt	Quantity
3822	22 mm	424 g/h	5,46 kW/h	200 mm	1
4226	30 mm	985 g/h	12,7 kW/h	202 mm	1

### TECHNICAL DATA

Working pressure: 1,5 - 2,0 bar

Gas: P, PB

## HOT-AIR SHRINKAGE TORCH EUROMAT MULTI



Art. Nr.	Type (∅)	Consumption	Output	Length	Quantity
17251	30 mm	150 g/h	6,95 kW/h	200 mm	1

### TECHNICAL DATA

Working pressure: 1,5 - 2,0 bar

Gas: P, PB

## PROPANE - REGULATORS

### REGULATOR PROPANE-BUTANE FIX



Art. Nr.	Outlet pressure	Inlet connection	Outlet connection	Quantity
25148	1,5 bar	G 3/8 LH	G 3/8 LH	1
25155	2 bar	G 3/8 LH	G 3/8 LH	1

## PROPALINE - ACCESSORIES

### PROPANE-BUTANE HOSE - FITTED DN 4 × 4



Art. Nr.	Length	Inner Ø	Outer Ø	Quantity
546900002154	1,5 m	4 mm	12 mm	1
546900002162	2,0 m	4 mm	12 mm	1
546900002188	3,0 m	4 mm	12 mm	1
546900002238	4,0 m	4 mm	12 mm	1
546900002196	5,0 m	4 mm	12 mm	1
546900002345	10,0 m	4 mm	12 mm	1

#### TECHNICAL DATA

Inlet connection:	G 3/8" LH
Outlet connection:	G 3/8" LH
Pressure class:	PB 30

### PROPANE-BUTANE HOSE - FITTED DN 6,3 × 5



Art. Nr.	Length	Inner Ø	Outer Ø	Quantity
546900037184	1,5 m	6,3 mm	17,6 mm	1
546900036202	5,0 m	6,3 mm	17,6 mm	1
546900039792	10,0 m	6,3 mm	17,6 mm	1

#### TECHNICAL DATA

Inlet connection:	G 3/8" LH
Outlet connection:	G 3/8" LH
Pressure class:	PB 30

### HOSE BREAK VALVE SBS



Designed to fit on outlet connection of the regulator.

#### USE:

a safety valve for immediate gas flow shut - off in case of sudden flow increasing (hose damage).

Art. Nr.	Type	Nominal flow rate 1,5 bar	Nominal flow rate 4 bar	Quantity
3087	SBS 1	1,5 kg/h	2,2 kg/h	1
3111	SBS 2	4,0 kg/h	6,0 kg/h	1
3129	SBS 3	6,0 kg/h	8,5 kg/h	1
3202	SBS 4	10,0 kg/h	14,0 kg/h	1

### ROTATING HOSE NIPPLE



Designed to fit on outlet connection of the regulator.

#### USE:

a safety valve for immediate gas flow shut - off in case of sudden flow increasing (hose damage).

Art. Nr.	Connection	Quantity
23507	G 3/8 LH	1



# **MACHINE CUTTING EQUIPMENT**

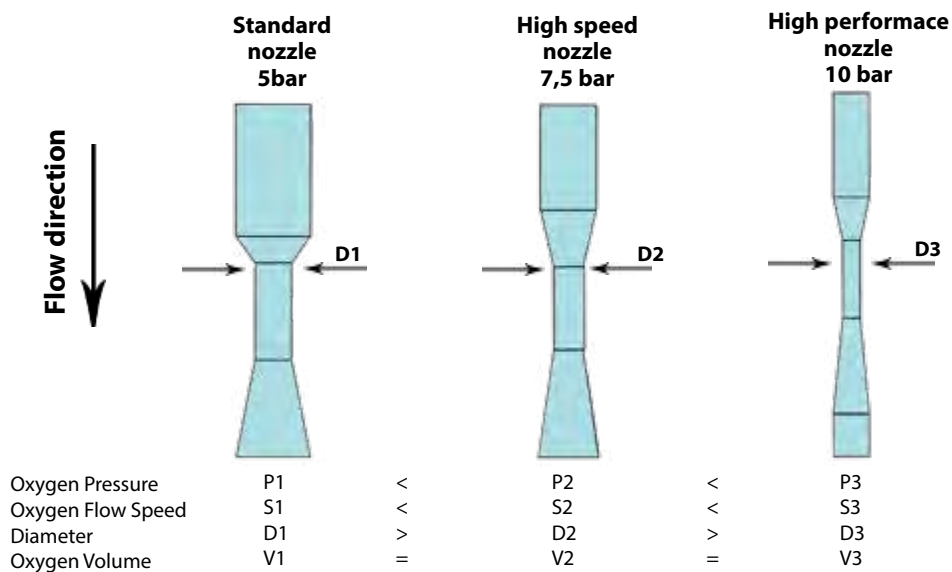
**CUTTING TORCHES AND NOZZLES  
FOR HIGH QUALITY AND PERFORMANCE**



## MACHINE CUTTING EQUIPMENT OVERVIEW

CUTTING SYSTEM	MIXING TYPE	GAS TYPE	STANDARD	HIGH SPEED	HIGH PERFORMANCE	RAPID CUTTING	HEAVY-DUTY
GCE FIT+®	Injector	A		ASF		ARC	
		P, M		PSF		PRC	
BIR+™	Injector	A	AC	ASD	AHD		
		P, M	PUZ	PSD	PHD		
FIT™, Jetstream	Injector	A		MA133		JETEX	
		P, M		MP133		PROPEX	
		Y		MY133		PROPEX	
BGR™, X541	Nozzle mixing	A		AMD COOLEX®	TRITEX		
		P, M	K50/K70 PUZ				PNMH

### DESIGN OF CUTTING OXYGEN CHANNEL

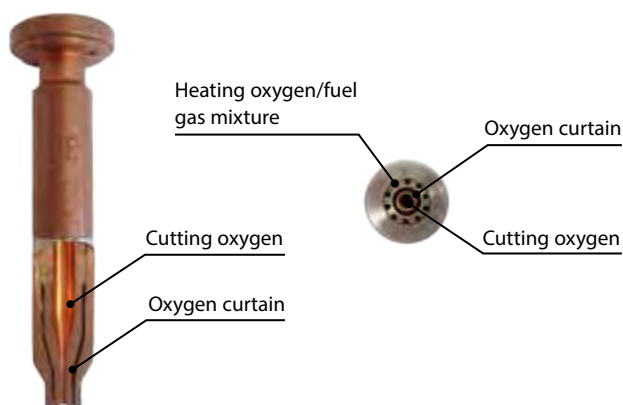


### RAPID CUTTING SYSTEM

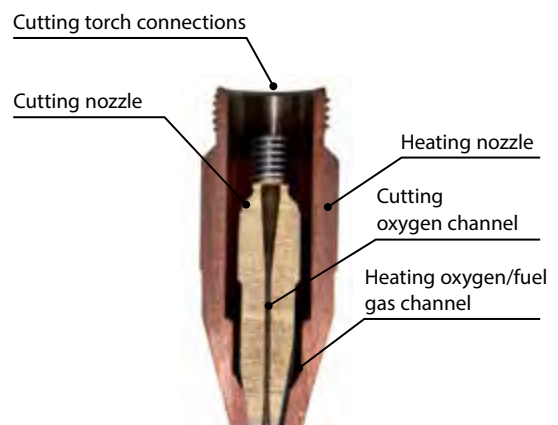
The rapid cutting system is designed for cutting of thin and medium dimensioned steel plates and long strips cutting. The nozzle operates with an oxygen curtain, which has the function of a shielding gas protecting oxygen stream against contamination.

The system provides a high cutting quality with smooth cut surfaces and sharp cutting top edges even achieving very high cutting speeds, 25-50 % more than conventional nozzles. Its unique design offers a wide cutting range while cutting different plate thickness by reducing the number of nozzle exchanges.

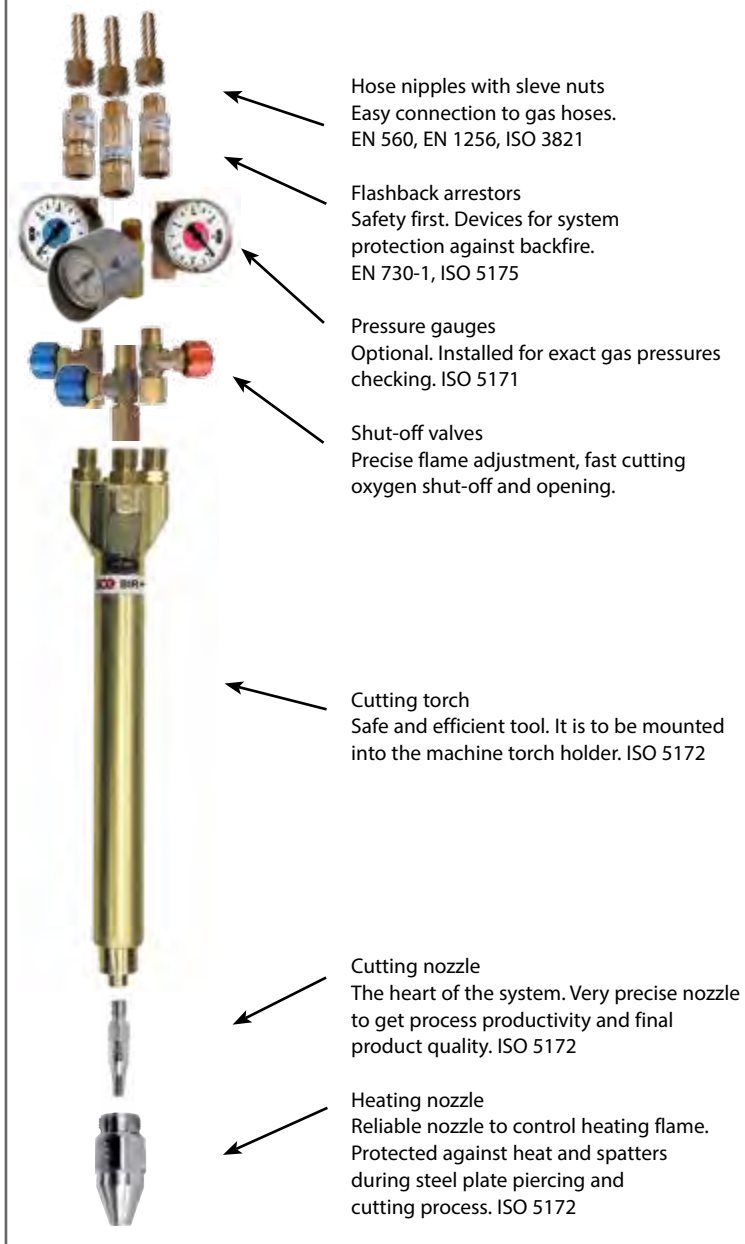
#### OXYGEN CURTAIN NOZZLE



#### CONVENTIONAL NOZZLE

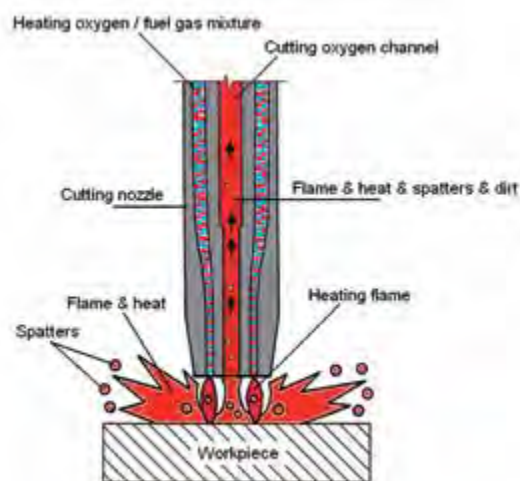


## CUTTING SYSTEM DESCRIPTION

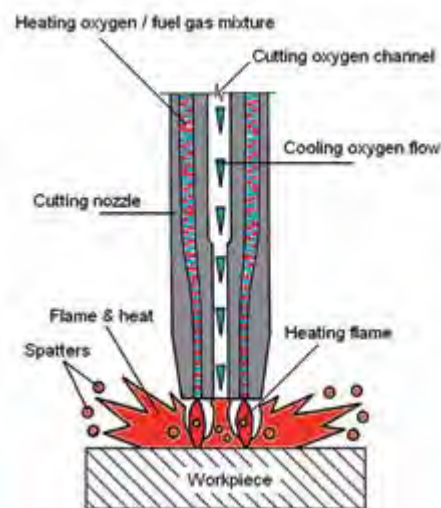


## COOLEX® - GCE PATENTED SYSTEM

- The BIR+™, FIT™ contain a cool flow valve which provides a small amount of oxygen during preheating of the basic material. This small oxygen flow is streaming through the cutting oxygen channel to cool down the complete torch system and prevents the reverse flow of hot gases in to the cutting nozzle. The nozzle is protected this way also against contamination.
- Longer nozzle life time
- Lower system temperature
- Constant shape of gas channels
- Constant gas flow



**Conventional system**



**System with COOLEX®**

## 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.

# MACHINE CUTTING TORCH GCE FIT+®

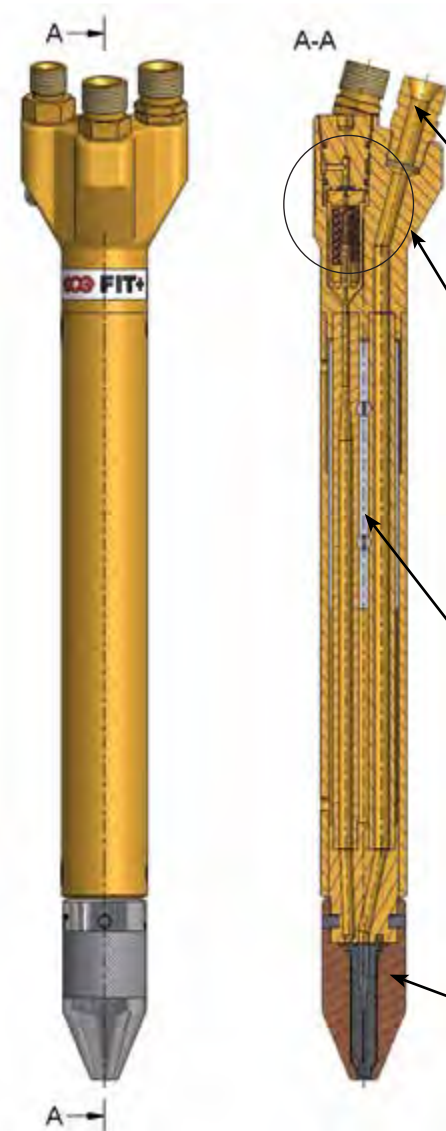
## INNOVATIVE TOOL-FREE SOLUTION

GCE FIT+® is unique system for oxy-fuel machine cutting technology. The long-term partnership with the customers resulted in the product concept creation. This product line is based on the wide experience with cutting application, one of the traditional fields of GCE activities. The main philosophy of GCE FIT+® is to make cutting process safe, efficient and operator friendly.

- High productivity of oxygen machine cutting process due to high-speed cutting nozzles
- Safe operations ensured by integrated COOLEX® and axial injector with application of RMS (Resonator Mixing System) in acetylene variants
- Working efficiency with minimized nozzles exchange time
- Easy handling for machine operators because of Tool-Free nozzles changing system
- Nozzles fixation done manually by special bayonet system, without any wrench
- One type of heating nozzle for all fuel gases
- Extended lifetime of heating nozzle
- Provided in accordance with ISO 5172

## APPLICATION FIELDS

- Oxygen cutting of straight and shape cuts in accordance with ISO 9013
- Oxygen cutting 3 - 300 mm
- Hole piercing up to 150 mm
- Applications with different fuel gases
- Prepared for all cutting machines



**GCE FIT+®**



## INTEGRATED COOLEX® SYSTEM

- special nozzle connecting heating and cutting oxygen flow channels
- cooling of cutting oxygen channel during preheating-period
- lower system temperature
- longer nozzle life-time
- constant shape of gas-flow channels

## RMS (RESONATOR MIXING SYSTEM)

- spiral injector
- effective system against backfire
- heating oxygen is coming through cooled copper spiral
- used in acetylene variants

## ALUMINIUM COOLER

- heat exchanger made of Al
- mixing tube is cooled by cutting oxygen flow

## HIGH-SPEED CUTTING NOZZLES

- high-speed cutting
- up to 8,5 bar cutting oxygen pressure
- convergent – divergent cutting channel
- Laval shape of cutting channel
- one heating nozzle for all fuel gases



## MACHINE CUTTING TORCH GCE FIT+®, INJECTOR TYPE



Art. Nr.	Length/diameter*	Fuel gas	Connections
0766121	220/32	Acetylen	G3/8", G3/8"LH, G1/4"
0766164	320/32	Acetylen	G3/8", G3/8"LH, G1/4"
0766223	110/32	Acetylen	G3/8", G3/8"LH, G1/4"
0766122	220/32	PMY	G3/8", G3/8"LH, G1/4"
0766165	320/32	PMY	G3/8", G3/8"LH, G1/4"
0766224	110/32	PMY	G3/8", G3/8"LH, G1/4"

\* Other torch variants on request

## TOOL-FREE HEATING NOZZLES GSF



Art. Nr.	Fuel Gas	Cutting range
0769932	APMYF	3-150 mm (A), 3-100 mm (PMY)
0769933	APMYF	150 - 300 mm (A), 100 - 300 mm (PMY)

## TOOL-FREE CUTTING NOZZLES ASF - ACETYLENE



HIGH SPEED CUTTING



Art. Nr.	Cutting range (mm)	Cutting speed (mm/min)	Cutting oxygen (bar)	Heating oxygen (bar)	Fuel gas (bar)	Cutting oxygen (Nm <sup>3</sup> /h)	Heating oxygen (Nm <sup>3</sup> /h)	Fuel gas (Nm <sup>3</sup> /h)
0769923	3 - 5	875 - 765	2,0 - 3,0	2,0 - 2,5	0,6	0,4 - 0,5	0,4	0,30
0769924	6 - 10	765 - 720	4,0 - 5,0	2,5	0,6	1,2 - 1,5	0,5	0,35
0769925	10 - 25	720 - 515	6,5 - 7,5	2,5	0,6	3,2 - 3,7	0,5	0,35
0769926	25 - 40	515 - 430	6,5 - 8,5	2,5	0,6	4,6 - 5,5	0,5	0,35
0769927	40 - 60	430 - 375	6,5 - 8,5	2,5	0,6	5,6 - 7,1	0,5	0,35
0769928	60 - 100	375 - 275	6,5 - 8,0	2,5	0,6	9,1 - 11,0	0,5	0,35
0769929	100 - 150	275 - 210	6,5 - 7,0	3,5	0,6	12,1 - 12,9	0,6	0,50
0769930	150 - 230	210 - 140	6,5 - 7,5	6,5 - 7,5	0,6	19,4 - 22,0	1,1	0,85
0769931	230 - 300	150 - 110	6,5 - 7,5	6,5 - 7,5	0,6	28,5 - 32,5	1,1	0,85

## TOOL-FREE CUTTING NOZZLES PSF - PROPANE, NATURAL GAS AND MIXED GASES



HIGH SPEED CUTTING



Art. Nr.	Cutting range (mm)	Cutting speed (mm/min)	Cutting oxygen (bar)	Heating oxygen (bar)	Fuel gas (bar)	Cutting oxygen (Nm <sup>3</sup> /h)	Heating oxygen (Nm <sup>3</sup> /h)	Fuel gas (Nm <sup>3</sup> /h)
0769913	3 - 6	795 - 730	2,0 - 5,0	1,5 - 2,0	0,2	0,5 - 1,0	1,0	0,25
0769914	7 - 15	690 - 575	5,0 - 7,0	2,0	0,2	1,6 - 2,0	1,3	0,32
0769915	15 - 25	575 - 480	6,0 - 7,0	2,0	0,2	2,5 - 3,1	1,3	0,32
0769916	25 - 40	480 - 420	6,0 - 7,5	2,0	0,2	3,8 - 4,5	1,3	0,32
0769917	40 - 60	415 - 355	5,5 - 7,5	2,0	0,2	4,2 - 5,6	1,3	0,32
0769918	60 - 100	350 - 275	6,0 - 8,5	2,0	0,2	7,6 - 10,6	1,3	0,32
0769919*	100 - 150	270 - 195	6,5 - 7,5	2,5	0,3	11,5 - 13,0	1,4	0,35
0769920	100 - 200	270 - 180	7,5 - 9,5	3,0	0,3	13,3 - 15,6	2,4	0,60
0769921	200 - 250	180 - 130	6,5 - 8,5	3,0	0,3	18,0 - 22,0	2,4	0,60
0769922	250 - 300	130 - 110	6,5 - 8,5	3,5	0,3	23,0 - 30,0	2,5	0,62

\* It is special nozzle designed for effective hole piercing. It is to be used in combination with GSF 3-100 mm.

## RAPID CUTTING NOZZLES

The rapid cutting system is designed for cutting of thin and medium dimensioned steel plates and long strips cutting. The nozzle operates with an oxygen curtain, which has the function of a shielding gas protecting oxygen stream against decontamination. The system provides a high cutting quality with smooth cut surfaces and sharp cutting top edges even achieving very high cutting speeds. Its unique design offers a wide cutting range while cutting different plate thickness by reducing the number of nozzle exchanges. Both cutting and heating nozzles are delivered assembled as one item.

### ARC - ACETYLENE



RAPID CUTTING



Ask for delivery time.

Art. Nr.	mm			mm/min	Acetylene		Heating oxygen		Cutting oxygen	
	mm	mm	mm		bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h
<b>F25510003</b>	3	4,0	2,6	1100 - 1050	0,2 - 0,8	0,5	1,5	0,6	8,0	5,7
	5	4,0	2,6	1000 - 950	0,2 - 0,8	0,5	1,5	0,6	8,0	5,7
	10	6,0	2,6	920 - 870	0,2 - 0,8	0,5	1,5	0,5	8,0	5,7
	15	6,0	2,7	820 - 780	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0
	20	6,0	2,7	740 - 680	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0
	25	6,0	2,7	670 - 610	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0
	30	6,0	2,7	600 - 550	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0
	40	6,0	2,7	480 - 420	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0
<b>F25510004</b>	3	4,0	3,0	1100 - 1050	0,2 - 0,8	0,5	1,5	0,6	8,0	9,2
	5	4,0	3,0	1000 - 950	0,2 - 0,8	0,5	1,5	0,6	8,0	9,2
	10	6,0	3,0	920 - 870	0,2 - 0,8	0,5	1,5	0,5	8,0	9,2
	15	6,0	3,2	820 - 780	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1
	20	6,0	3,2	740 - 680	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1
	25	6,0	3,2	670 - 610	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1
	30	6,0	3,2	600 - 550	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1
	40	6,0	3,2	480 - 420	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1
	50	9,0	3,3	460 - 380	0,2 - 0,8	0,7	2,25	0,8	10,0	11,1
	70	12,0	3,5	320 - 260	0,2 - 0,8	0,7	2,25	0,8	10,0	11,1

### PRC - PROPANE, NATURAL GAS



RAPID CUTTING



Ask for delivery time.

Art. Nr.	mm			mm/min	Fuel gas		Heating oxygen		Cutting oxygen	
	mm	mm	mm		bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h	bar	m <sup>3</sup> /h
<b>F25510001</b>	5	6,0	2,8	930 - 850	0,2 - 0,8	0,4	1,5	1,6	8,0	5,7
	10	6,0	2,8	840 - 760	0,2 - 0,8	0,4	1,5	1,6	8,0	5,7
	15	6,0	2,9	760 - 700	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	20	6,0	2,9	690 - 610	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	25	6,0	2,9	620 - 540	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	30	6,0	2,9	540 - 460	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	40	6,0	2,9	410 - 360	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	<b>F25510002</b>	5	6,0	3,0	930 - 850	0,2 - 0,8	0,4	1,5	1,6	8,0
10		6,0	3,2	840 - 760	0,2 - 0,8	0,4	1,5	1,6	8,0	9,2
15		6,0	3,2	760 - 700	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
20		6,0	3,2	690 - 610	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
25		6,0	3,2	630 - 550	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
30		6,0	3,2	570 - 490	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
40		6,0	3,2	490 - 440	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
50		9,0	3,3	410 - 350	0,2 - 0,8	0,5	2,2	2,1	10,0	11,1
70		12,0	3,5	300 - 260	0,2 - 0,8	0,5	2,2	2,1	10,0	11,1

## MACHINE CUTTING TORCH BIR+™

### MACHINE CUTTING TORCH BIR+™, INJECTOR TYPE



**GCE BIR+™**

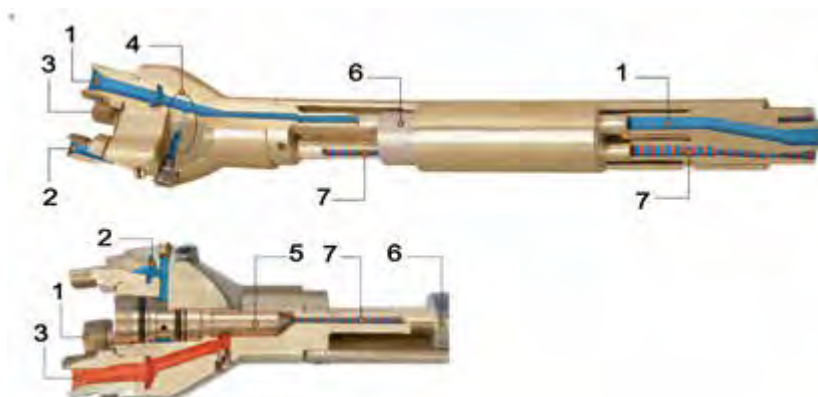
Other lengths and diameters on customer request.

COOLEX® inside - unique cooling system. Stable and safe brass injector is placed in the massive torch body. Aluminium cooling heat exchanger downstream the injector completes cooling function of the BIR+™. Heat is transported away from the injector which protects the torch against backfire. These features guarantee high process security, operation safety and long equipment life-time.

Suitable for use with cutting nozzle types (AC, ASD, AHD) for acetylene and (PUZ, PSD, PHD) for propane, natural gas and mixed fuel gases.

Art. Nr.	Length / diameter	Gas	Connection
14055239	110/32	A	G3/8", G3/8"LH, G1/4"
14055218	220/32	A	G3/8", G3/8"LH, G1/4"
14055241	320/32	A	G3/8", G3/8"LH, G1/4"
14055217	220/32	F	G3/8", G3/8"LH, G1/4"
14055242	110/32	PM	G3/8", G3/8"LH, G1/4"
14055219	220/32	PM	G3/8", G3/8"LH, G1/4"
14055240	320/32	PM	G3/8", G3/8"LH, G1/4"

## FEATURES OF MACHINE CUTTING TORCH BIR+™



- 1 Cutting oxygen
- 2 Heating oxygen
- 3 Fuel gas
- 4 COOLEX® flow valve
- 5 Injector
- 6 Aluminium cooling body
- 7 Fuel gas/oxygen mixture

## CUTTING NOZZLES AC – ACETYLENE

Standard cutting nozzle for application on cutting machines and on all cutting devices. Chrome plated cutting nozzle and heating nozzle. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece.



Art. Nr	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Acet. bar	Cutting oxygen m³/h	Heating oxygen m³/h	Acet. m³/h
14001010	3 - 10	730 - 600	2,0 - 3,0	2	0,5	1,3 - 1,7	0,4	0,3
14001011	10 - 25	620 - 410	4,5 - 5,0	2,5	0,5	2,3 - 2,8	0,5	0,35
14001012	25 - 40	410 - 340	4,0 - 5,0	2,5	0,5	2,3 - 2,8	0,5	0,35
14001013	40 - 60	340 - 310	4,0 - 5,0	2,5	0,5	4,1 - 5,1	0,5	0,35
14001014	60 - 100	320 - 250	5,0 - 6,0	3	0,5	8,1 - 9,5	0,5	0,4
14001015	100 - 200	270 - 210	6,5 - 7,5	3,5	0,5	12,0 - 13,0	0,6	0,5
14001016	200 - 300	150 - 110	6,5 - 7,5	6,5 - 7,5	0,5	28,5 - 32,5	1,1	0,8
14001020	3 - 100	Heating nozzle						
14001021	100 - 300	Heating nozzle						

## CUTTING NOZZLES ASD – ACETYLENE

Cutting nozzle



Heating nozzle

High speed machine cutting nozzle, chrome plated cutting nozzle and heating nozzle. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece.

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Acet. bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Acet. m <sup>3</sup> /h
14001217	3 - 5	800 - 750	2,0 - 3,0	2,0 - 2,5	0,6	0,4 - 0,5	0,4	0,3
14001218	6 - 10	750 - 700	4,0 - 5,0	2,5	0,6	1,2 - 1,5	0,5	0,35
14001219	10 - 25	650 - 500	6,5 - 7,5	2,5	0,6	3,2 - 3,7	0,5	0,35
14001220	25 - 40	500 - 420	6,5 - 8,5	2,5	0,6	4,6 - 5,5	0,5	0,35
14001221	40 - 60	420 - 360	6,5 - 8,5	2,5	0,6	5,6 - 7,1	0,5	0,35
14001222	60 - 100	360 - 270	6,5 - 8,5	2,5	0,6	9,1 - 11,0	0,5	0,35
14001223	100 - 150	270 - 210	6,5 - 7,0	3,5	0,6	12,1 - 12,9	0,6	0,5
14001224	150 - 230	210 - 140	6,5 - 7,5	6,5 - 7,5	0,6	19,4 - 22,0	1,1	0,85
14001225	230 - 300	150 - 110	6,5 - 7,5	6,5 - 7,5	0,6	28,5 - 32,5	1,1	0,85
14001226	3 - 150	Heating nozzle						
14001238	150 - 300	Heating nozzle						

### HIGH SPEED CUTTING

## CUTTING NOZZLES AHD – ACETYLENE

Cutting nozzle

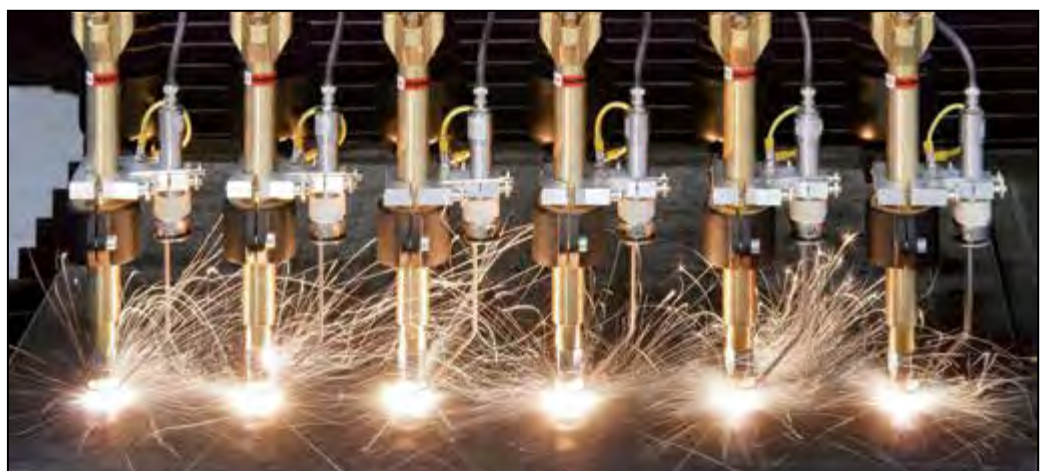


Heating nozzle

High performance machine cutting nozzle, chrome plated cutting nozzle and heating nozzle. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Acet. bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Acet. m <sup>3</sup> /h
14001519	3 - 5	800 - 750	2,0 - 3,0	2,5	0,5	0,4 - 0,5	0,4	0,35
14001520	6 - 10	750 - 700	4,0 - 5,0	3	0,5	1,0 - 1,2	0,5	0,4
14001521	10 - 25	725 - 530	9,0 - 12,0	3	0,5	2,7 - 3,6	0,5	0,4
14001522	25 - 50	530 - 420	8,5 - 11,5	3	0,5	3,6 - 4,6	0,5	0,4
14001523	50 - 80	420 - 330	9,0 - 12,0	3	0,5	6,7 - 8,6	0,5	0,4
14001524	80 - 100	300 - 280	9,5 - 11,5	3	0,6	8,9 - 10,1	0,5	0,4
14001525	100 - 150	280 - 210	6,5 - 7,0	4	0,6	12,1 - 12,9	0,6	0,5
14001526	3 - 150	Heating nozzle						

### HIGH PERFORMANCE CUTTING



BIR™ multi-torch hole piercing

## CUTTING NOZZLES PUZ – PROPANE/NATURAL GAS AND MIXED FUEL GASES

Cutting nozzle



Heating nozzle



Standard cutting nozzle for application on cutting machines and on all cutting devices, cutting nozzle plain brass, heating nozzle chrome plated. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece.

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Fuel gas bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Fuel gas m <sup>3</sup> /h
14001350	3 - 10	600 - 550	2,0 - 3,0	2	0,2	1,3 - 1,7	1,3	0,33
14001351	10 - 25	560 - 400	4,5 - 5,0	2,5	0,2	2,8 - 3,4	1,5	0,38
14001352	25 - 40	400 - 340	4,0 - 5,0	2,5	0,2	2,8 - 3,4	1,5	0,3
14001353	40 - 60	340 - 310	4,5 - 5,5	2,5	0,2	4,6 - 5,6	1,5	0,38
14001354	60 - 100	310 - 260	5,0 - 6,0	2,5	0,2	8,1 - 9,5	1,5	0,38
14001355	100 - 200	260 - 180	5,5 - 6,5	3,0 - 5,0	0,3	12,6 - 14,4	1,7 - 2,5	0,50 - 0,70
14001356	200 - 300	180 - 110	6,5 - 8,5	5,0 - 7,0	0,3	12,6 - 14,4	2,5 - 3,3	0,70 - 0,90
14001147	3 - 100	Heating nozzle, Propane/ natural gas						
14001148	100 - 300	Heating nozzle, Propane/ natural gas						
14001587	3 - 100	Heating nozzle, mixed fuel gas						
14001588	100 - 300	Heating nozzle, mixed fuel gas						

## CUTTING NOZZLES PSD – PROPANE/NATURAL GAS AND MIXED FUEL GASES

Cutting nozzle



Heating nozzle



High speed machine cutting nozzle, cutting nozzle and heating nozzle chrome plated. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece.

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Fuel gas bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Fuel gas m <sup>3</sup> /h
14001227	3 - 6	750 - 740	2,0 - 5,0	1,5	0,2	0,5 - 1,0	1	0,25
14001228	7 - 15	670 - 560	5,0 - 7,0	2	0,2	1,6 - 2,0	1,3	0,32
14001229	15 - 25	560 - 460	6,0 - 7,0	2	0,2	2,5 - 3,1	1,3	0,32
14001230	25 - 40	460 - 400	6,0 - 7,5	2	0,2	3,8 - 4,5	1,3	0,32
14001231	40 - 60	400 - 340	5,5 - 7,5	2	0,2	4,2 - 5,6	1,3	0,32
14001232	60 - 100	340 - 270	6,0 - 8,5	2	0,2	7,6 - 10,6	1,3	0,32
14001250*	100 - 150	270 - 180	6,5 - 7,5	2,5	0,3	11,5 - 13,0	1,4	0,35
14001233	100 - 200	270 - 180	7,5 - 9,5	4,5	0,6	13,3 - 15,6	2,4	0,6
14001234	200 - 250	180 - 130	6,5 - 8,5	4,5	0,6	18,0 - 22,0	2,4	0,6
14001235	250 - 300	130 - 110	6,5 - 8,5	5	0,6	23,0 - 30,0	2,5	0,62
14001236	3 - 100	Heating nozzle						
14001237	100 - 300	Heating nozzle						

\* Cutting nozzle 14001250 preferable for hole piercing. Please use it only together with heating nozzle 14001236!

### HIGH SPEED CUTTING

## CUTTING NOZZLES PHD – PROPANE/NATURAL GAS AND MIXED FUEL GASES

Cutting nozzle



Heating nozzle



High performance machine cutting nozzle, cutting nozzle and heating nozzle chrome plated. Minimal order quantity of cutting nozzles: 5 pieces, heating nozzles: 1 piece.

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Fuel gas bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Fuel gas m <sup>3</sup> /h
14001511	3 - 5	800 - 750	2,0 - 3,0	2,0 - 2,5	0,2	0,4 - 0,5	1	0,25
14001512	6 - 10	750 - 690	4,0 - 5,0	2,5	0,2	1,0 - 1,2	1,3	0,33
14001513	10 - 25	690 - 500	9,0 - 12,0	2,5	0,2	2,7 - 3,6	1,3	0,38
14001514	25 - 50	500 - 390	8,5 - 11,0	2,5	0,2	3,6 - 4,6	1,3	0,38
14001515	50 - 80	390 - 320	9,0 - 12,0	2,5	0,2	6,7 - 8,6	1,3	0,38
14001516	80 - 100	320 - 280	9,5 - 11,0	2,5	0,2	8,9 - 10,1	1,3	0,38
14001517	3 - 100	Heating nozzle, propane						
14001518	3 - 100	Heating nozzle, mixed fuel gas						

### HIGH PERFORMANCE CUTTING



## MACHINE CUTTING TORCHES JETSTREAM, FIT™ AND BM31CF

### MACHINE CUTTING TORCHES – INJECTOR TYPE

The nozzle seat is designed for fixing of the GCE nozzles with original flat nozzle seat: MA133, MP133, JETEX and PROPEX.

#### TORCH TYPE JETSTREAM

Art. Nr.	Length/diam.	Gas	Connection	Including
203021311	220/32	A	2×UNF 9/16", 1×UNF 9/16"LH	BV12 + hose nipple 3×6,3 + valves
203021315	400/32	A	2×UNF 9/16", 1×UNF 9/16"LH	BV12 + hose nipple 3×6,3 + valves
203021301	220/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8, 1×6,3 + valves
203021306	400/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8, 1×6,3 + valves
203021313	220/32	PM	2×UNF 9/16", 1×UNF 9/16"LH	BV12 + hose nipple 3×6,3 + valves
203021317	400/32	PM	2×UNF 9/16", 1×UNF 9/16"LH	BV12 + hose nipple 3×6,3 + valves
203021304	220/32	PM	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8, 1×6,3 + valves

#### TORCH TYPE FIT™

Art. Nr.	Length/diam.	Gas	Connection	Including
0766107	220/32	PM	G3/8", G3/8"LH, G1/4"	
0766123	400/32	A	G3/8", G3/8"LH, G1/4"	
0766106	220/32	A	G3/8", G3/8"LH, G1/4"	
0766124	400/32	PM	G3/8", G3/8"LH, G1/4"	

#### TORCH TYPE BM 31 CF

Art. Nr.	Length/diam.	Gas	Connection	Including
203021243	100/28	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8 and 1×6,3
203021245	100/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8 and 1×6,3
203021244	160/28	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8 and 1×6,3
203021246	160/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2×8 and 1×6,3

Other lengths and diameters on customer request.



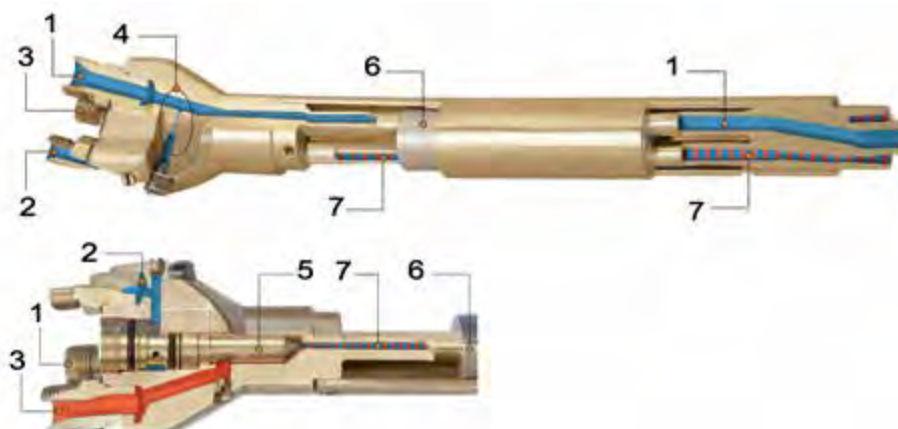
## FEATURES OF MACHINE CUTTING TORCHES JETSTREAM AND FIT™

#### COOLEX® INSIDE

COOLEX® is unique cooling system - for more information see page 2. Then stable and safe brass injector is placed in the massive torch body. Aluminium cooling heat exchanger downstream the injector completes cooling function of the torches. Heat is transported away from the injector which protects the torch against backfire. These features guarantees high process security, operation safety and long equipment life-time.

#### RMS - RESONATOR MIXING SYSTEM

RMS is based on spiral injector covered in massive brass body. Spiral injector ensures quality oxygen-fuel gas mixing with keeping of maximal safety level. Any heat transported into the injector nozzle is effectively cooled by oxygen flow. RMS is active protection of acetylene JETSTREAM and FIT™ variants against flashback ensuring high equipment life time and safety environment.



- 1 Cutting oxygen
- 2 Heating oxygen
- 3 Fuel gas
- 4 COOLEX® flow valve
- 5 Injector
- 6 Aluminium cooling body
- 7 Fuel gas/oxygen mixture

## CUTTING NOZZLES MA133 – ACETYLENE

High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle. Both cutting and heating nozzles are delivered assembled as one item.



### HIGH SPEED CUTTING

Art. Nr.	mm	mm/min	bar Cutting oxygen	bar Heating oxygen	bar Acet.	m <sup>3</sup> /h Cutting oxygen	m <sup>3</sup> /h Heating oxygen	m <sup>3</sup> /h Acet.
202150330	3 - 8	900 - 650	3 - 5	1,5	0,2 - 0,8	1,25 - 1,85	0,55	0,5
202150331	8 - 15	800 - 600	5 - 6	1,5	0,2 - 0,8	2,15 - 2,6	0,55	0,5
202150332	15 - 30	680 - 460	6 - 7	1,5	0,2 - 0,8	3,6 - 4,15	0,55	0,5
202150333	30 - 50	450 - 360	6,5 - 7,5	1,5	0,2 - 0,8	5,2 - 5,85	0,55	0,5
202150334	50 - 70	475 - 340	7,5	2,3	0,2 - 0,8	7,8 - 8	0,715	0,65
202150335	70 - 100	365 - 250	7 - 8	2,3	0,2 - 0,8	11,1 - 12,3	0,715	0,65
202150336	100 - 200	250 - 150	5,5 - 7,5	2,0 - 2,5	0,6	11,7 - 15,7	0,75 - 0,85	0,58 - 0,77
202150337	200 - 300	180 - 110	5,5 - 6,5	4 - 5	0,6	28,6 - 31	1,12 - 1,47	1,02 - 1,34

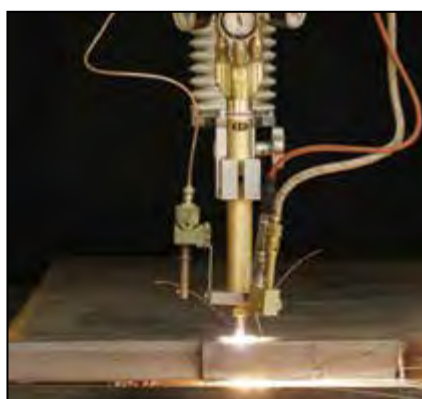
## CUTTING NOZZLES JETEX® – ACETYLENE

Rapid cutting nozzles with an oxygen curtain and flat seat. Both cutting and heating nozzles are delivered assembled as one item.



### RAPID CUTTING

Art. Nr.	mm	mm	mm	mm/min	bar Acetylene	m <sup>3</sup> /h Heating oxygen	bar Heating oxygen	m <sup>3</sup> /h Cutting oxygen	bar Cutting oxygen	m <sup>3</sup> /h Cutting oxygen
202150191	3	4,0	2,6	1100 - 1050	0,2 - 0,8	0,5	1,5	0,6	8,0	5,7
5	4,0	2,6	1000 - 950	0,2 - 0,8	0,5	1,5	0,6	8,0	5,7	
10	6,0	2,6	920 - 870	0,2 - 0,8	0,5	1,5	0,5	8,0	5,7	
15	6,0	2,7	820 - 780	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0	
20	6,0	2,7	740 - 680	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0	
25	6,0	2,7	670 - 610	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0	
30	6,0	2,7	600 - 550	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0	
40	6,0	2,7	480 - 420	0,2 - 0,8	0,5	1,5	0,6	10,0	7,0	
202150192	3	4,0	3,0	1100 - 1050	0,2 - 0,8	0,5	1,5	0,6	8,0	9,2
5	4,0	3,0	1000 - 950	0,2 - 0,8	0,5	1,5	0,6	8,0	9,2	
10	6,0	3,0	920 - 870	0,2 - 0,8	0,5	1,5	0,5	8,0	9,2	
15	6,0	3,2	820 - 780	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1	
20	6,0	3,2	740 - 680	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1	
25	6,0	3,2	670 - 610	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1	
30	6,0	3,2	600 - 550	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1	
40	6,0	3,2	480 - 420	0,2 - 0,8	0,5	1,5	0,6	10,0	11,1	
50	9,0	3,3	460 - 380	0,2 - 0,8	0,7	2,25	0,8	10,0	11,1	
70	12,0	3,5	320 - 260	0,2 - 0,8	0,7	2,25	0,8	10,0	11,1	



Cutting with Jetstream



Preheating with FIT™

## CUTTING NOZZLES MP133 – PROPANE, NATURAL GAS



### HIGH SPEED CUTTING

High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle. Both cutting and heating nozzles are delivered assembled as one item.

Art. Nr.	mm	mm/min	bar Cutting oxygen	bar Heating oxygen	bar Fuel g.	m <sup>3</sup> /h Cutting oxygen	m <sup>3</sup> /h Heating oxygen	m <sup>3</sup> /h Fuel g.
202150320	3 - 10	750 - 600	4 - 5	2	0,1 - 0,8	2	2	0
202150321	10 - 15	635 - 540	5 - 6	2	0,1 - 0,8	2,32 - 2,6	2	0
202150322	15 - 30	580 - 440	6 - 7	2	0,1 - 0,8	3,6 - 4	1,6 - 1,75	0,40 - 0,44
202150323	30 - 50	470 - 380	6,5 - 7,5	2	0,1 - 0,8	4,85 - 5,7	2	0
202150324	50 - 70	400 - 300	7 - 7,5	2	0,1 - 0,8	7,4 - 7,75	2	1
202150325	70 - 100	320 - 250	7 - 8	2	0,1 - 0,8	11,1 - 12,3	2	1
202150326	100 - 200	250 - 150	5,5 - 7,5	2	0,3 - 0,8	11,7 - 15,7	2	1
202150327	200 - 300	180 - 110	5,5 - 6,5	3	0,3 - 0,8	26,8 - 31	3	1

## CUTTING NOZZLES MY133 – MIXED FUEL GASES



### HIGH SPEED CUTTING

High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle. Both cutting and heating nozzles are delivered assembled as one item.

Art. Nr.	mm	mm/min	bar Cutting oxygen	bar Heating oxygen	bar Fuel gas	m <sup>3</sup> /h Cutting oxygen	m <sup>3</sup> /h Heating oxygen	m <sup>3</sup> /h Fuel gas
202150340	3 - 10	750 - 600	4 - 5	2	0,1 - 0,8	2	2	0
202150341	10 - 15	635 - 540	5 - 6	2	0,1 - 0,8	2,32 - 2,6	2	0
202150342	15 - 30	580 - 440	6 - 7	2	0,1 - 0,8	3,6 - 4	1,6 - 1,75	0,40 - 0,44
202150343	30 - 50	470 - 380	6,5 - 7,5	2	0,1 - 0,8	4,85 - 5,7	2	0
202150344	50 - 70	400 - 300	7 - 7,5	2	0,1 - 0,8	7,4 - 7,75	2	1
202150345	70 - 100	320 - 250	7 - 8	2	0,1 - 0,8	11,1 - 12,3	2	1
202150346	100 - 200	250 - 150	5,5 - 7,5	2	0,3 - 0,8	11,7 - 15,7	2	1
202150347	200 - 300	180 - 110	5,5 - 6,5	3	0,3 - 0,8	26,8 - 31	3	1

## CUTTING NOZZLES PROPEX – PROPANE



### RAPID CUTTING

Rapid cutting nozzles with an oxygen curtain and flat seat. Both cutting and heating nozzles are delivered assembled as one item.

Art. Nr.	mm	mm	mm	mm/min	Fuel gas	Heating oxygen	Cutting oxygen
202150370	5	6,0	2,8	930 - 850	0,2 - 0,8	0,4	8,0
	10	6,0	2,8	840 - 760	0,2 - 0,8	0,4	8,0
	15	6,0	2,9	760 - 700	0,2 - 0,8	0,4	10,0
	20	6,0	2,9	690 - 610	0,2 - 0,8	0,4	10,0
	25	6,0	2,9	620 - 540	0,2 - 0,8	0,4	10,0
	30	6,0	2,9	540 - 460	0,2 - 0,8	0,4	10,0
	40	6,0	2,9	410 - 360	0,2 - 0,8	0,4	10,0
202150371	5	6,0	3,0	930 - 850	0,2 - 0,8	0,4	8,0
	10	6,0	3,2	840 - 760	0,2 - 0,8	0,4	8,0
	15	6,0	3,2	760 - 700	0,2 - 0,8	0,4	10,0
	20	6,0	3,2	690 - 610	0,2 - 0,8	0,4	10,0
	25	6,0	3,2	630 - 550	0,2 - 0,8	0,4	10,0
	30	6,0	3,2	570 - 490	0,2 - 0,8	0,4	10,0
	40	6,0	3,2	490 - 440	0,2 - 0,8	0,4	10,0
	50	9,0	3,3	410 - 350	0,2 - 0,8	0,5	10,0
	70	12,0	3,5	300 - 260	0,2 - 0,8	0,5	10,0

## MACHINE CUTTING TORCH BGR™ (X541)

### MACHINE CUTTING TORCH BGR™ (X541) – NOZZLE MIX TYPE



Suitable for use with nozzle mix tips for all fuel gases. The torch types BGR™ are defined for the adaptation of 30° nozzle cones (IC). The outer design corresponds to the BIR™ torch types and is robust and reliable.

#### TORCH TYPE BGR™

Art. Nr.	Length/dia	Gas	Connection	Note
14056220	220/32	APMY	G3/8", G3/8"LH, G1/4"	
14056320	320/32	APMY	G/8", G3/8"LH, G1/4"	incl. rack m 1,25

#### TORCH TYPE X541

Art. Nr.	Length/dia	Gas	Connection	Note
203021310	150/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8 and 1x6,3, valves
203021298	220/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8 and 1x6,3, valves
203021299	320/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8 and 1x6,3, valves

#### TORCH TYPE BNM

Art. Nr.	Length/dia	Gas	Connection
0764583	90/28	APMY	2xG1/4", G1/4"LH

Other lengths and diameters on customer request.

**GCE BGR™**

### CUTTING NOZZLES A-MD COOLEX® – ACETYLENE

Nozzle with 2-piece design, outer nozzle and inner nozzle chrome plated, simple cleaning procedure, COOLEX® inside. Special acetylene high speed mixing cutting nozzle. Both cutting and heating nozzles are delivered assembled as one item.



**HIGH SPEED CUTTING**

Art. Nr.	mm	mm/min	bar Cutting oxygen	bar Heating oxygen	bar Acet.	m³/h Cutting oxygen	m³/h Heating oxygen	m³/h Acet.
14001450	3 - 5	800 - 750	2 - 3	1	0,3	0,4 - 0,55	1	0,5
14001451	6 - 10	750 - 700	4 - 5	1	0,3	1,2 - 1,4	1	0,5
14001452	10 - 25	650 - 500	6,5 - 7,5	1	0,3	3,2 - 3,7	1	0,5
14001453	25 - 40	500 - 420	6,5 - 8	1	0,3	4,6 - 5,5	1	0,5
14001454	40 - 60	420 - 360	6,5 - 8,5	1,5	0,3	5,6 - 7,1	1	0,7
14001455	60 - 100	360 - 270	6,5 - 8	1,5	0,3	9,1 - 11	1	0,7
14001456	100 - 150	270 - 210	6,5 - 7	1,5	0,4	12,2 - 12,9	1	0,7
14001457	150 - 230	210 - 130	6,5 - 7,5	2	0,4	19,4 - 22	2	1,4
14001458	230 - 300	140 - 110	6,5 - 7,5	2	0,6	28,5 - 32,5	2	1,4

### CUTTING NOZZLE TRITEX – ACETYLENE

Modern high performance cutting oxygen channel, outer and inner nozzle chrome plated. 2-piece design, simple cleaning procedure, COOLEX® inside. Special acetylene high performance mixing cutting nozzle. Both cutting and heating nozzles are delivered assembled as one item.



**HIGH PERFORMANCE CUTTING**

Art. Nr.	mm	mm/min	bar Cutting oxygen	bar Heating oxygen	bar Acet.	m³/h Cutting oxygen	m³/h Heating oxygen	m³/h Acet.
219144464	3 - 5	760 - 700	3 - 4	1	0,6	0,5 - 0,6	1	0,5
219144465	6 - 10	700 - 650	5 - 7,5	1	0,6	1,6 - 2,1	1	0,5
219144466	10 - 25	725 - 530	9 - 11	1	0,6	4,2	1	0,5
219144467	25 - 50	530 - 410	9 - 11	1	0,6	4,3 - 5,2	1	0,5
219144468	50 - 75	410 - 330	10 - 11	1,5	0,7	6,7 - 8,1	0,55 - 0,7	0,5 - 0,7
219144469	75 - 100	330 - 280	10 - 11	1,5	0,7	8,9 - 10,2	1	0,7
219144470	100 - 150	280 - 210	9 - 10	1,5	0,7	9,5 - 11,5	0,8 - 1,3	0,7 - 1
219144471	150 - 240	210 - 130	6,5 - 7,5	2	0,8	19 - 22	1,5 - 1,8	1,2 - 1,5
219144472	240 - 300	130 - 110	6,5 - 7,5	2	0,8	28 - 32	3	2,2

## CUTTING NOZZLES K50 PUZ AND K70 PUZ – PROPANE, NATURAL GAS

Standard mixing cutting nozzle for application on all cutting devices. 2 - part design of inner cutting nozzle based on PUZ. Outer heating nozzle is chrome plated for longer life time. Both cutting and heating nozzles are delivered assembled as one item. K50 is for cutting up to 100mm. K70 for cutting of 100-300mm steel plate thickness.



Cutting nozzle complete



Nozzle adapter



Heating nozzle

Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Fuel g. bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Fuel g. m <sup>3</sup> /h	
14001749	3 - 10	660 - 550	2 - 3	2,5	0,3	1,3 - 1,7	1,4	0,36	
14001750	10 - 25	560 - 400	3 - 4,5	3	0,3	1,7 - 2,6	1,6	0,41	
14001751	25 - 40	400 - 340	4 - 5	3	0,3	2,8 - 3,4	1,6	0,41	
14001753	40 - 60	340 - 300	4,5 - 5,5	3	0,3	4,6 - 5,6	1,6	0,41	
14001755	60 - 100	310 - 260	5 - 6	3	0,3	8,1 - 9,5	1,6	0,41	
14001761	100 - 200	260 - 180	5,5 - 6,5	3,5 - 5,5	0,4	12,6 - 14,4	1,8 - 2,6	0,49 - 0,7	
14001762	200 - 300	180 - 110	6,5 - 8,5	5,5 - 7,5	0,4	23,1 - 29,1	2,6 - 3,4	0,7 - 0,92	
14050765	Spare part, nozzle adapter (3 cone, 30° International Cone)								
14001763	Spare part, heating nozzle separate								

## HEAVY-DUTY CUTTING NOZZLES PNMH - PROPANE, NATURAL GAS

PNMH nozzles are designed for heavy-duty cutting for thicknesses above 300mm. Massive copper design provides high heat resistance. The wide cutting range requires proper gas supply system with high flow capacity components (pipeworks, pressure regulators, rubber hoses, isolating valves, solenoid valves, proportional valves, flashback arrestors, etc).



Art. Nr.	mm	mm/min	Cutting oxygen bar	Heating oxygen bar	Fuel g. bar	Cutting oxygen m <sup>3</sup> /h	Heating oxygen m <sup>3</sup> /h	Fuel g. m <sup>3</sup> /h
1299895	300	150	7,7	5	0,5	30	6,5 1,	1
1299896	400	100	10,2	7	0,6	46	10,5	1,8
1299896	500	85	11,2	7	1	55	10,5	4,8
1263580	300-500	Heating nozzle PM						



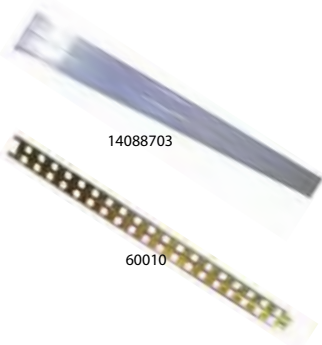
500 mm steel plate cutting

## GCE proFIT®

### PORTABLE STRAIGHT LINE CUTTING MACHINE



**GCE proFIT®**



#### Art. Nr. Description

<b>548900060001</b>	GCE proFIT® machine with one nozzle mix torch, without track
<b>548900060000</b>	GCE proFIT® machine without torch, without track

#### TECHNICAL DATA

Cutting capacity	up to 150 mm with one torch, up to 100 mm with two torches
Cutting speed	75 - 700 mm/min
Operation	forward and reverse with variable speed
Circle cutting diameter	110 - 1340 mm (optional up to 2340 mm)
Max. strip width	485mm (cutting with two torches paralel)
Power supply	230V AC / 50 Hz
Engine supply	24V DC
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
Machine dimensions	180 × 380 × 160 (W × L × H) without torch, hoses and torch bar
Weight	13 kg with one torch, 16 kg with two torches

#### BASIC MACHINE PACKAGE INCLUDES:

- equipment for one torch-cutting application
- one nozzle mix cutting torch (only for 548900060001)
- torch holder, torch bar, stainless steel heat shield, circle cutting pole, circle centre-piece
- internal gas hoses, gas manifold with shut-off valves
- 10 m electric cable with plug DIN
- nozzle mounting and cleaning accessories, flame lighter
- guide rail and cutting nozzles are delivered separately from the machine



GCEproFIT® in operation

#### CUTTING TORCHES

There is one nozzle mix and two variants of injector cutting torch available. Injector cutting torch BIR Mini shall be used with two-piece cutting nozzles screwed into the torch head. FIT Mini is designed with reliable and unique flat seat. Fuel gas type has to be considered in case of injector torch. All torches are in accordance with ISO 5172.

Art. Nr.	Description	Gas type	Recomended cutting nozzles	Pos.
<b>0766262</b>	Nozzle mix cutting torch	APMYF	ANME, AMD COOLEX, PNME, K50PUZ	1
<b>0766221</b>	BIR Mini, injector cutting torch	A	AC, (ASD)	2
<b>0766222</b>	BIR Mini, injector cutting torch	PMYF	PUZ, (PSD)	2
<b>0766173</b>	FIT Mini, injector cutting torch	A	MA133	3
<b>0766174</b>	FIT Mini, injector cutting torch	PMYF	MP133, (MY133)	3

#### ACCESSORIES AND SPARE PARTS

##### Art. Nr. Description

<b>14088703</b>	Stabile guide rail track 2 m, extruded aluminium profile with connecting clip
<b>60010</b>	Basic guide rail track 2 m, Zn-coated steel
<b>304605940</b>	Extension kit for second cutting torch (proper torch is to be ordered separately)
<b>14008263</b>	Flashback Arrestor, Heating oxygen, G 1/4"
<b>14008278</b>	Flashback Arrestor, Fuel gas, G 3/8" LH
<b>14008157</b>	Brass cleaning brush
<b>548904225520</b>	Stainless steel conical cleaning needle for cutting oxygen channels
<b>304604911-JR</b>	Gas manifold for one cutting torch
<b>304605911-JR</b>	Gas manifold for two cutting torches
<b>304604914</b>	Cutting torch holder
<b>304604924</b>	Circle diameter extension



## PORTABLE PIPE CUTTING MACHINE PCM

### PIPE CUTTING MACHINE PCM – ACETYLENE / PROPANE , NATURAL GAS



Robust but lightweight portable pipe cutting machine PCM for oxygen – acetylene / propane, natural gas cutting of square or bevel cuts. The machine body has a light-alloy cast base. The manual torch movement is realized by the chain wheel and chain with standard length 2,2 m (approx. 7ft-8in) supplied with each machine. The standard delivery consists flat wheels for easy movement on the tube surface.

Art. Nr.	Description
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60201	Pipe Cutting Machine PCM
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#### TECHNICAL DATA

Move:	manual forward and reverse
Pipe wall thickness:	square cutting up to 100 mm (4 in), beveling 45° up to 50 mm (2 in)
Pipe diameter:	101 - 610 mm (4 - 24 in) (standard machine)
Maximum pipe diameter (on customer request):	1220 mm (48 in)
Weight:	9 kg (20 lb) (standard machine)
Bevel cut angle:	0 - 45 deg.
Input hoses connections:	Oxygen G3/8", Fuel gas G3/8"LH

### PCM ACCESSORIES



Art. Nr.	Description	Recommended cutting nozzels
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0764582	Nozzle mix cutting torch with rack	ANME, PNME
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889400	Drive chain 585 mm (20 detachable chain links)	
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14008408	Flashback Arrestor, Oxygen, G 3/8"	
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14008278	Flashback Arrestor, Fuel gas, G 3/8" LH	
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## PORTABLE SHAPE CUTTING MACHINE SCM

### SHAPE CUTTING MACHINE SCM – ACETYLENE / PROPANE, NATURAL GAS



This easy to use machine can reproduce profiles from a reusable steel template. The steel template is traced by a powered magnetic roller with a variable speed SCR control system to provide maximum stability. The template mounting arm is fully adjustable. Templates for internal and external tracing are easily produced by simply incorporating an allowance for the tracing roller diameter and kerf.

The torch uses standard PNME or ANME tips for use with oxy-propane or oxy-acetylene and torch holder for square and bevel cuts and can be swivelled up for easy tip maintenance and replacement.

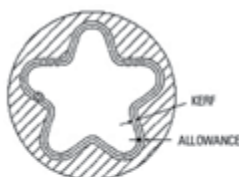
An automatic switch enables simultaneous use of the cutting oxygen and the drive. The machine can be used for circle cutting up to 700 mm diameter and can cut up to 1700 mm diameter using the extended circle attachment. Weighing only 50 kg this machine is easily portable for use in any location.

Art. Nr.	Description
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60050	Cutting Machine
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#### TECHNICAL DATA

Weight:	50 kg
Power:	220 V AC
Motor:	24 V DC
Standard circle diameter:	30 - 700 mm
Extended circle diameter:	1700 mm
Square edges length:	30 - 600 mm
Cutting thickness:	3 - 100 mm
Cutting speed:	100 - 1000 mm/min
Cutting accuracy:	+/- 0,5 mm
Template magnet diameter:	10 mm



### SCM ACCESSORIES



Art. Nr.	Description	Recommended cutting nozzels
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548904046841	Nozzle mix cutting torch with rack	ANME, PNME
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548304684924	Hose set	
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### CUTTING NOZZLES ANME – ACETYLENE



Art. Nr.	Thickness mm	Size inch	Cut. speed (mm/min)	Oxygen (bar)	Fuel gas (bar)	Oxygen (m <sup>3</sup> /h)	Fuel gas (m <sup>3</sup> /h)
0768670	3 - 6	1/32	560 - 470	2,5 - 3,5	0,3	1,25 - 1,65	0,3
0768635	5 - 12	3/64	480 - 390	3,0 - 4,0	0,3	2,12 - 3,2	0,4
0768599	10 - 75	1/16	400 - 205	3,5 - 4,5	0,3	3,2 - 4,45	0,45
0768636	70 - 100	5/64	220 - 150	4,5 - 5,5	0,5	8,4 - 9,8	0,6
0768662	90 - 150	3/32	160 - 125	5,5 - 6,0	0,5	9,2 - 14,6	0,75

### CUTTING NOZZLES PNME – PROPANE, NATURAL GAS



Art. Nr.	Thickness mm	Size inch	Cut. speed (mm/min)	Oxygen (bar)	Fuel gas (bar)	Oxygen (m <sup>3</sup> /h)	Fuel gas (m <sup>3</sup> /h)
0769494	3 - 6	1/32	550 - 430	2,5 - 3,5	0,2	1,8 - 2,95	0,3
0769495	5 - 12	3/64	440 - 360	3,0 - 4,0	0,2	3,3 - 4,95	0,4
0769496	10 - 75	1/16	380 - 205	3,5 - 4,5	0,2	5,0 - 8,6	0,45
0769497	70 - 100	5/64	220 - 150	4,5 - 5,5	0,4	9,4 - 12,8	0,6
0769498	90 - 150	3/32	160 - 125	5,5 - 6,5	0,4	14,0 - 18,6	0,75



Pipe cutting machine PCM in operation



## MACHINE CUTTING ACCESSORIES

### FLASHBACK ARRESTORS FOR MACHINE CUTTING TORCHES EN 730-1, ISO 5175



Art. Nr.	Gas	Connection (EN 560)
14008408	Cutting oxygen	G 3/8"
14008263	Heating oxygen	G 1/4"
14008278	Fuel gas	G 3/8" LH

### NON RETURN VALVE BV 12 M



This non-return valve (EN 730-2) can be connected to the inlets of machine cutting torches BIR™, BGR™ and Jet-stream.

Art. Nr.	Connection
0863561	G 1/4"
0863563	G 3/8"
203011054P	G 3/8" LH

### PRESSURE CONTROL GAUGE



To ensure the right pressure values on torch entrance, a pressure control gauge can be fitted to the threaded unions.

Art. Nr.	Pressure indication	Connection (EN 560)
14008259	0 - 10 bar	G1/4"
14008569	0 - 10 bar	G3/8"
14008567	0 - 2,5 bar	G3/8" LH
ARV0027	0 - 16 bar	G3/8"

### CLEANING ACCESSORIES



Art. Nr.	Description
14008157	Brass cleaning brush
548904225520	Stainless steel conical cleaning needle for cutting oxygen channels
548814071191P	Cleaning needle set (10 pieces)
218190051	Chemical nozzle cleaner

### FLAME LIGHTER



Art. Nr.	Description
5480003001BP	Flame lighter (5 pieces)
5480003001XC	Space flint stone (1000 pcs)

### LEAK DETECTION SPRAY



Art. Nr.	Description
WP22028	Gas leak detector 400 ml

### ADJUSTMENT VALVES



Art. Nr.	Application	Connection (EN 560)
14056015	Cutting oxygen	G 3/8"
14056016	Heating oxygen	G 1/4"
14056017	Fuel gas	G3/8"LH
203010607P	Oxygen	UNF 9/16"
203010609P	Fuel gas	UNF 9/16"LH

## SPANNER



Art. Nr.	Description
163811162890P	Multifunction spanner

## HOSE NIPPLES



Art. Nr.	Hose diameter	For nut with connection (EN 560)
4599440P	8 mm	G 3/8"
4599380P	6,3 mm	G 1/4"

## SLEEVE NUTS



Art. Nr.	Connection (EN 560)
548200018934P	G 3/8"
548200018932P	G 3/8" LH
4599400P	G 1/4"

## STRIP CUTTING DEVICE



Max. cutting thickness 75 mm, max. strip 450 mm.

Art. Nr.	Torch	Gas
14055509	for BIR+™	with acetylene, propane, natural gas
14056012	for BGR™/X541	with all fuel gases
202235504	for FIT™/Jetstream	with acetylene, propane, natural gas
F25910001*	for GCE FIT+®	with acetylene, propane, natural gas

\* Ask for delivery time.

## BEVEL CUTTING DEVICE



Art. Nr.	Torch	Gas
219200073	for BGR™/X541	with acetylene, propane, natural gas
202235166	for FIT™/Jetstream	with all fuel gases
0764659	for BIR+™	with acetylene, propane, natural gas
F25910002*	for GCE FIT+®	with acetylene, propane, natural gas

\* Ask for delivery time.

## NOZZLE NUT



Art. Nr.	Torch
201032270	for FIT™/Jetstream/BM 31 CF
3551506P	for BGR™/X541 (5 pcs)



Bevel cutting with FIT™



Strip cutter for BGR™

## 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



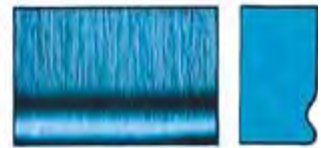
### NARROWING OF KERF (CONVERGENT)

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



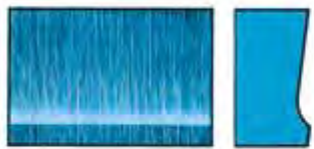
### CONCAVE CUT SURFACE BENEATH TOP EDGE

- 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



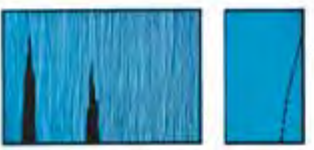
### EXCESSIVE CUT DRAG LINE DEPTH

- 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



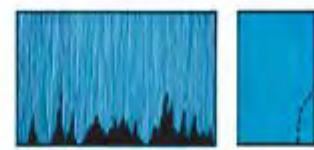
### SINGLE GOUGES

- 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 AD 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) -  $\text{CH}_4$



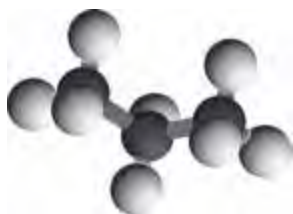
Ethane -  $\text{C}_2\text{H}_6$



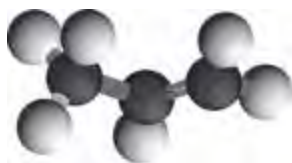
Ethene (ethylene) -  $\text{C}_2\text{H}_4$



Ethine (acetylene) -  $\text{C}_2\text{H}_2$



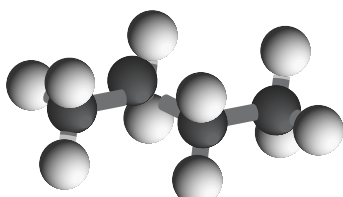
Propane -  $\text{C}_3\text{H}_8$



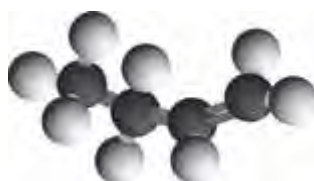
Propene (propylene) -  $\text{C}_3\text{H}_6$



Propyne (methylacetylene) -  $\text{C}_3\text{H}_4$



n. - Butane -  $\text{C}_4\text{H}_{10}$

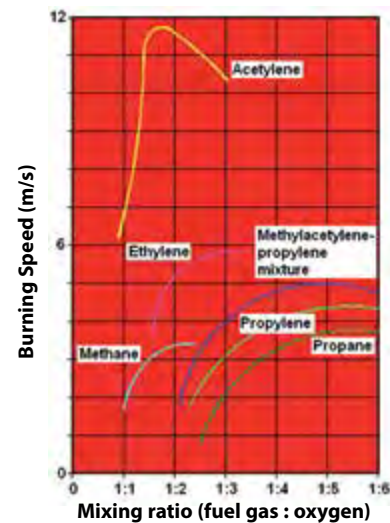
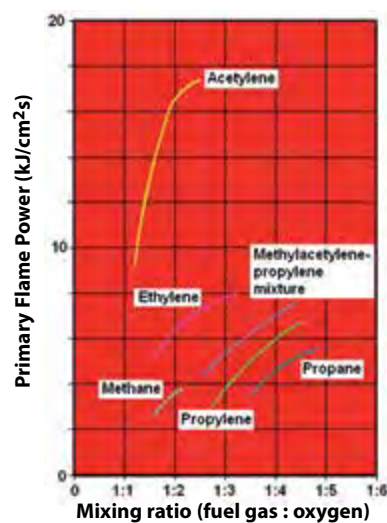
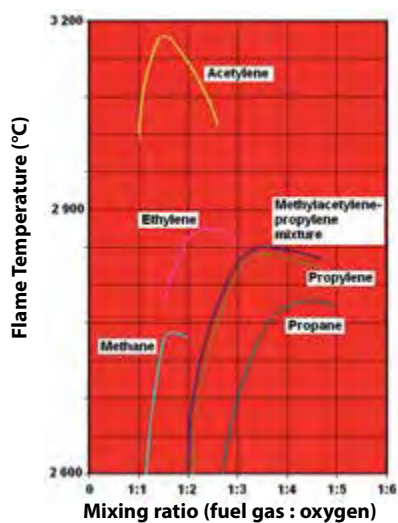


1 - Butene -  $\text{C}_4\text{H}_8$



Butadiene -  $\text{C}_4\text{H}_6$

## FUEL GASES PROPERTIES



## FUEL GASES PROPERTIES

Fuel gas type			Heating power		Mixing ratio		Flame temperature (°C)		Density	
					V oxygen / V fuel gas				1 bar, 15°C	liquid form
			MJ/m <sup>3</sup>	MJ/kg	N	M	N	M	kg/m <sup>3</sup>	kg/l
Hydrogen	$\text{H}_2$	H	10,758	119,533	0,36	0,42	2 835	2 856	0,09	0,07
Methane	$\text{CH}_4$	M	31,814	44,186	1,6	1,8	2 770	2 786	0,72	0,42
Acetylene	$\text{C}_2\text{H}_2$	A	56,93	48,678	1,1	1,5	3 106	3 160	1,17	0,62
Ethylene	$\text{C}_2\text{H}_4$	F	55,674	47,6	1,8	2,4	2 902	2 924	1,17	0,57
Propylene	$\text{C}_3\text{H}_6$	Y	89,999	46,153	2,8	3,5	2 872	2 896	1,95	0,58
Propane	$\text{C}_3\text{H}_8$	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

## 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

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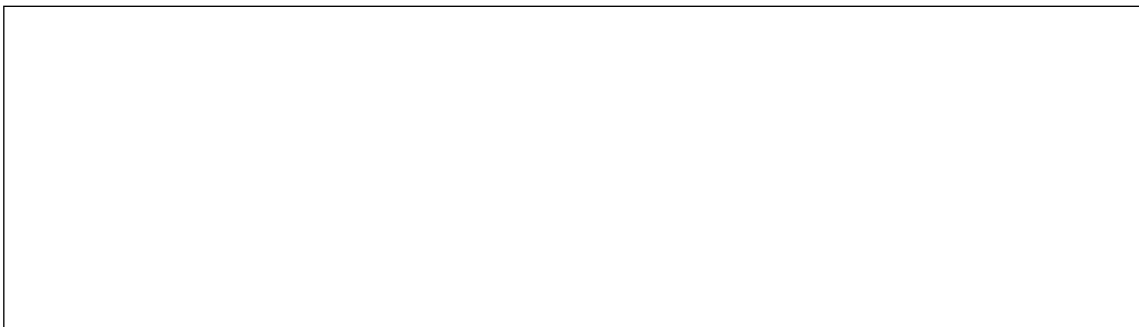
Phone: +44 (0)1942 29 29 50

Fax: +44 (0)1942 29 29 77

Email: [sales.gb@gcegroup.com](mailto:sales.gb@gcegroup.com)

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GCE Group is one of the world's leading companies in the field of gas control equipment. The headquarters are in Malmö, Sweden, and the two major supply units are located in Europe and Asia. The company operates 15 subsidiaries around the world and employs more than 850 people. GCE Group includes four business areas – Cutting & Welding, Process Applications, Medical and High Purity. Today's product portfolio corresponds to a large variety of applications, from single pressure regulators and blowpipes for cutting and welding to sophisticated gas supply systems for medical and electronics industry applications.



**UNITED KINGDOM & IRELAND  
GCE Ltd**

Yew Tree Way, Stone Cross Park  
Golborne, Warrington  
WA3 3JD

Phone: +44 (0)1942 29 29 50  
Fax: +44 (0)1942 29 29 77

[sales.gb@gcegroup.com](mailto:sales.gb@gcegroup.com)  
[www.gcegroup.com](http://www.gcegroup.com)



Gas Control Equipment