



GAS EQUIPMENT 2017

EDITION 1/2017

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 Technologies
- Valves
- Healthcare
- Druva

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



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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						
175 mm	ANM / PNM ANME / PNME	NM250	G3/8" LH + RH	Diam. 10 mm	Safe-Guard 5 FR19N	CENTRAL GAS SUPPLY
200 mm						
225 mm						
250 mm						
275 mm						
300 mm						
400 mm	Consult with GCE	Consult with GCE				
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.

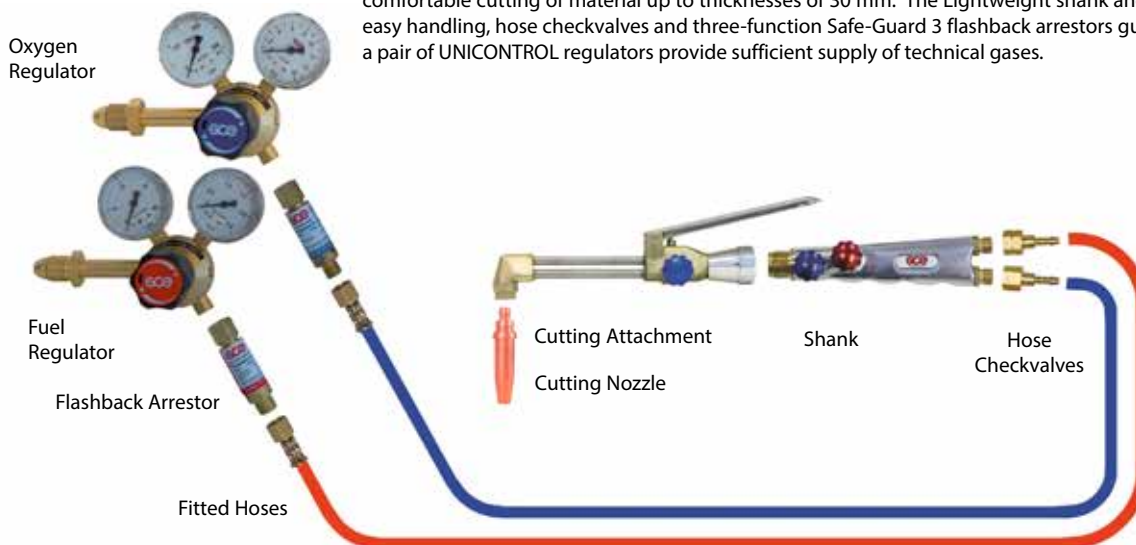


Plate thickness	Nozzle	Torch	Checkvalve	Hose	Flashback Arrestors	Regulators	
1 - 3	0769416	0766229 - Shank ORBIT + 0766230 - Cutting attachment ORBIT	871131 - BV12 HCV 1/4 × 6,3 RH	Hose 6,3 × 13,3	0764470	0783653	
3 - 6	0769285		+		Safe-guard 3 OXY G3/8	+	UNICONTROL OXYGEN
6 - 20	0769287		871132 - BV12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

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.

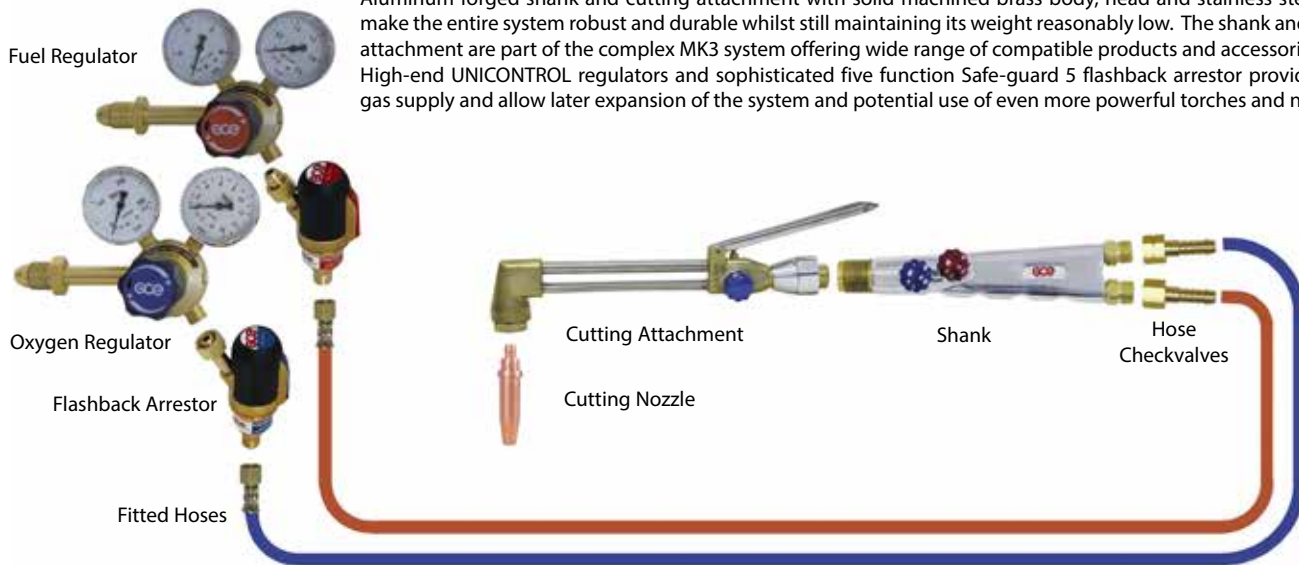


Plate thickness	Nozzle ACE	Nozzle PROP	Torch	Checkvalve	Hose	Flahback Arrestor	Regulators
3 - 6	0768554	0768880	0766241 - MK3 Shank +	871121 - BV12	Hose 6,3 × 13,3	0764457	0783652
5 - 12	0768555	0768865		G3/8" × 6,3 RH		Safe-guard 5 OXY G3/8" RH	UNICONTROL OXYGEN
10 - 75	0768556	0768879		+		+	+
70 -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

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.

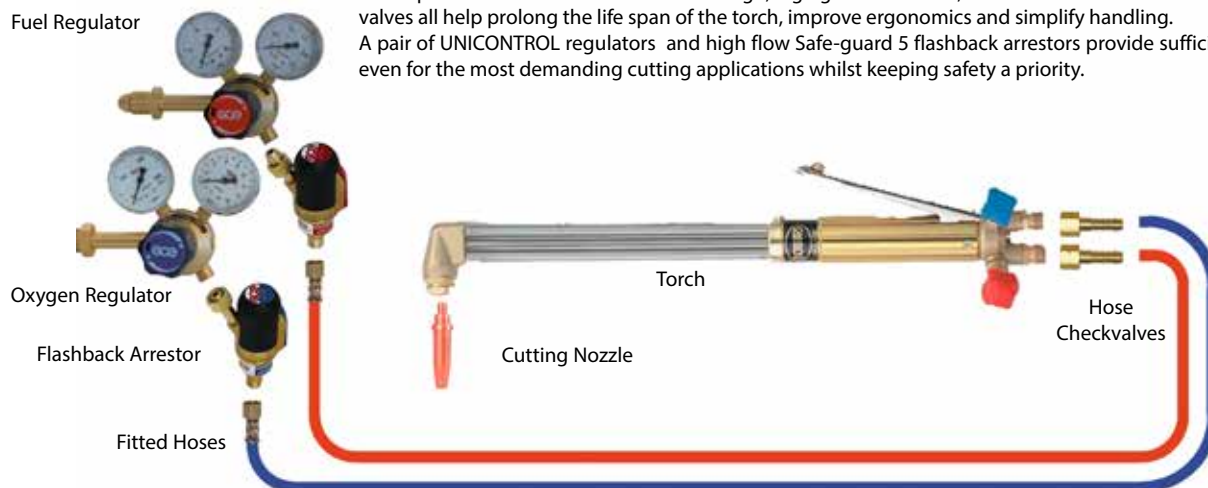
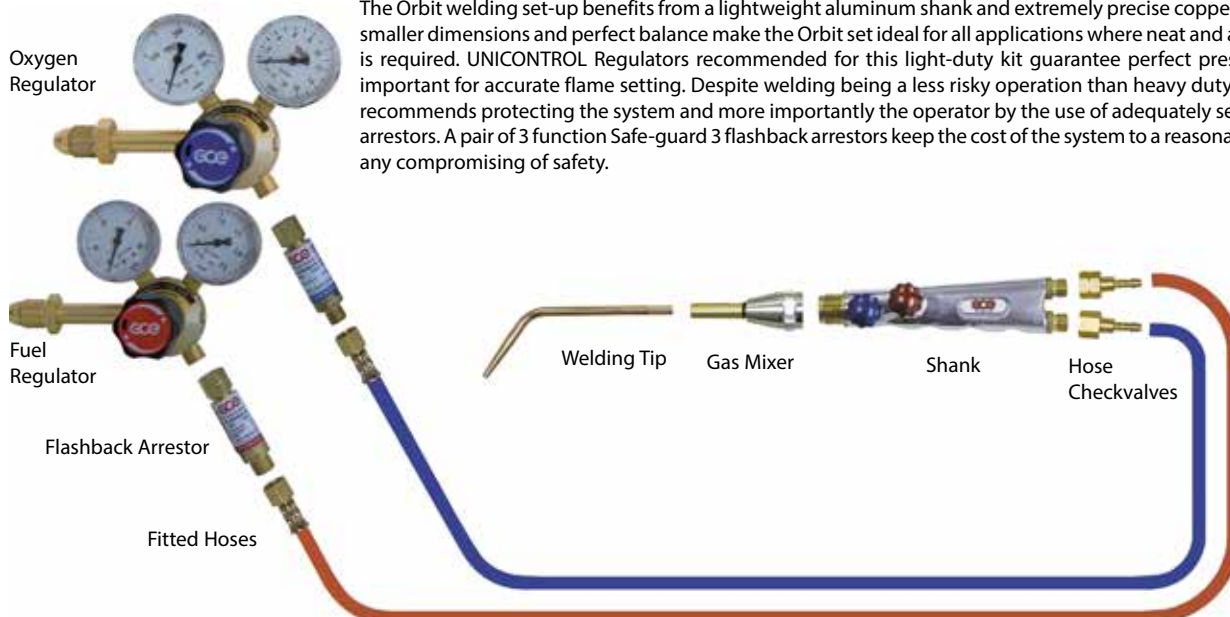


Plate thickness	Nozzle ACE	Nozzle PROP	Torch	Checkvalve	Hose	Flahback Arrestor	Regulators	
3 - 6	0768670	0769494	88090C* - NM250 Cutting Torch 490 mm	871111 - BV12	Hose 8 × 15	0764424	0783652	
5 - 12	0768635	0769495		or G3/8 × 10 RH		G3/8" × 8 RH	Safe-guard 5 OXY G3/8" RH	UNICONTROL OXYGEN
10 - 75	0768599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

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

OXY-FUEL WELDING SYSTEMS

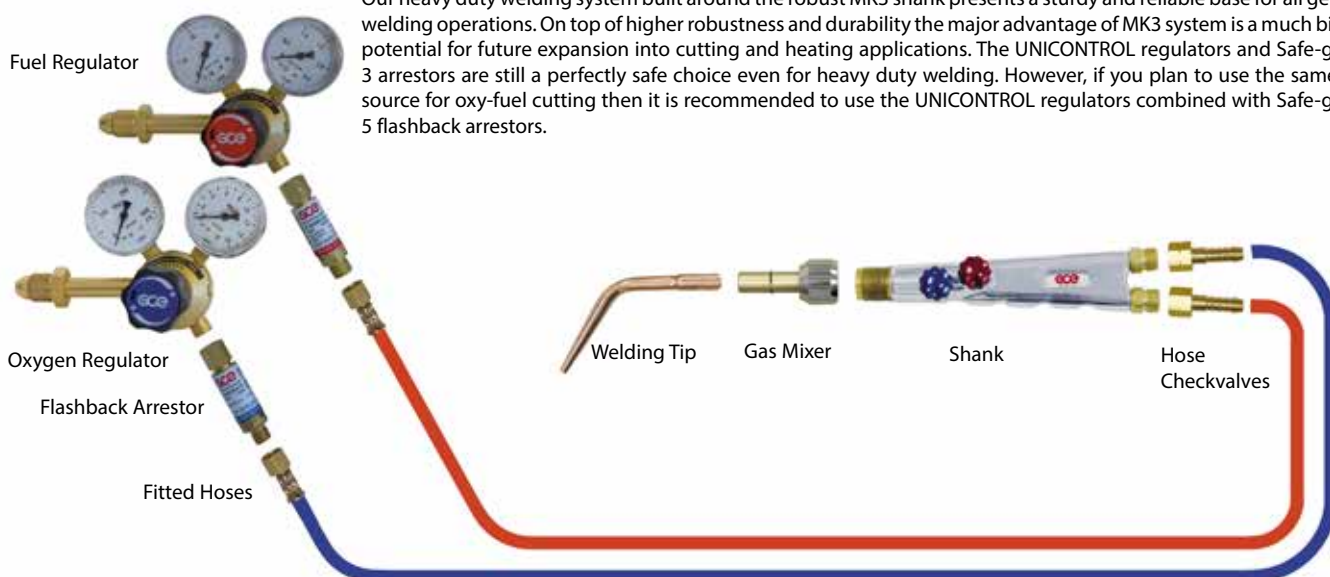
1. RECOMMENDED LIGHT DUTY WELDING SYSTEM



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 m³/h.

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

PROPANE TORCHES

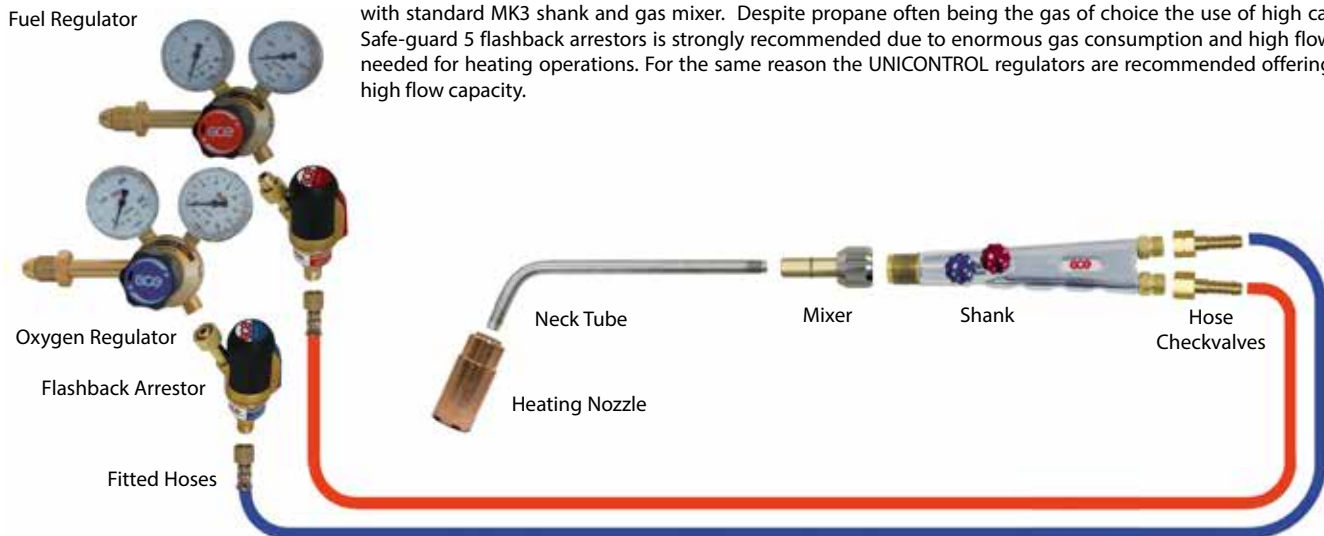
Max. propane supply from a 33-kg bottle = approximately 1,6 m³/h.

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

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	+ G3/8" × 8 RH		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



Gas Control Equipment

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 encapsulated valve opening and gas stream throttling.

By changing the area of opening as upstream pressures and downstream flow-rate vary, pressure drop through the encapsulated 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 encapsulated 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

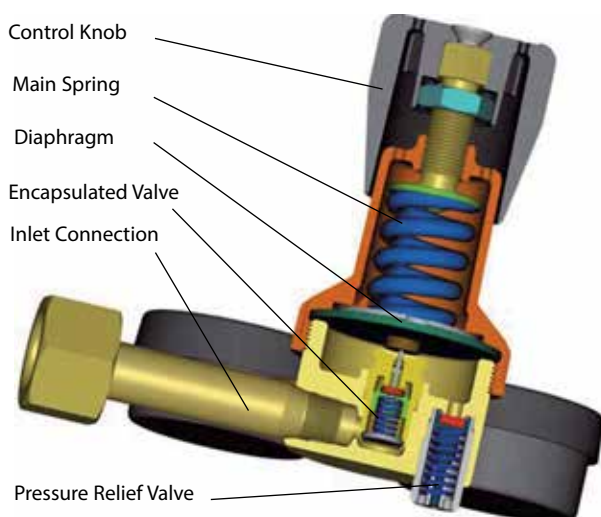
Consider the pressure range available on cylinder side and mainly the pressure requested on regulator output. Standard cutting, welding or heating operations can be served by UNI/S2+ regulator series but even for special high pressure applications the JETCONTROL 600/S Series is available. Due to safety 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).

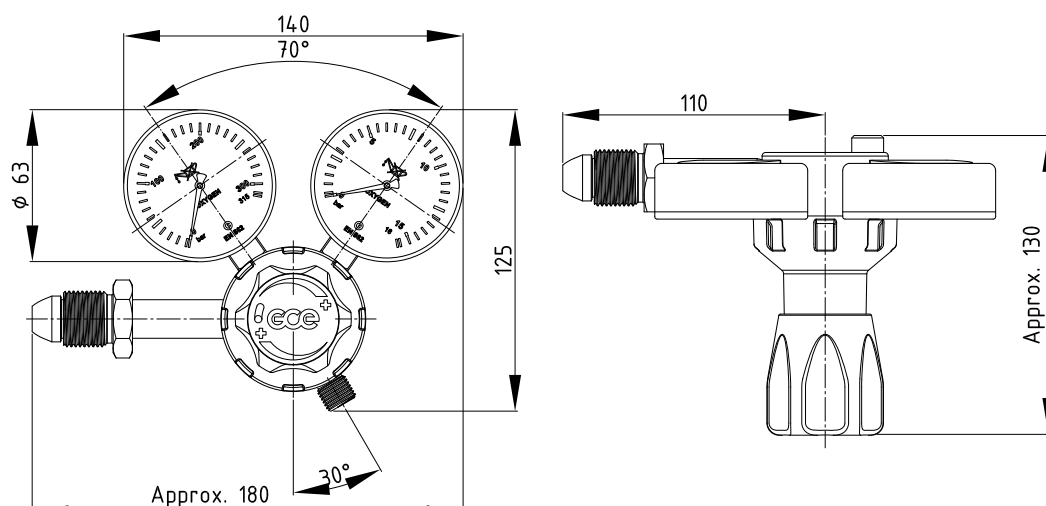
These regulators are independently type-tested and certified by BAM Berlin (The German State Testing Institute).



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

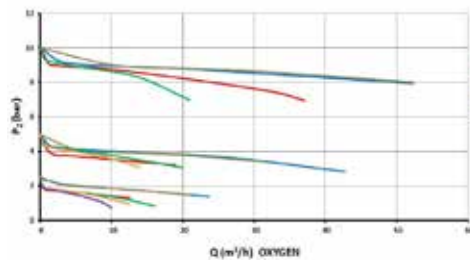


PRODUCT FEATURES

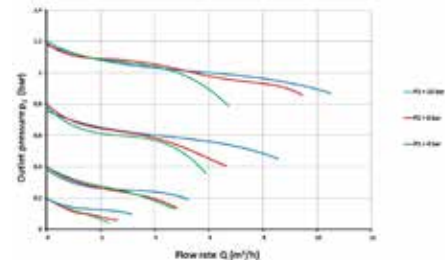


REGULATOR PARAMETERS

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 ³ /h	Nominal flow m ³ /h
0783651	Oxygen	0	300	10	G5/8" (BS3)	G3/8"	54	30
0783650	Oxygen	2	300	4	G5/8" (BS3)	G3/8"	21	5
0783652	Oxygen	2	300	10	G5/8" (BS3)	G3/8"	54	30
0783641	Acetylene	0	25	1,5	G5/8" LH (BS4)	G3/8" LH	14	5
0783640	Acetylene	2	25	1,5	G5/8" LH (BS4)	G3/8" LH	14	5
0783656	Propane	0	25	4	G5/8" LH (BS4)	G3/8" LH	15	5
0783644	Argon	2	300	4	G5/8" (BS3)	G3/8"	19	5
0783645	Argon	2	300	Flow 0-15 LPM	G5/8" (BS3)	G3/8"	15 LPM	
0783646	Argon	1	300	2-preset	G5/8" (BS3)	G3/8"	15 LPM	
0783647	Argon	2	300	Flow 0-50 LPM	G5/8" (BS3)	G3/8"	50 LPM	
50530	Mapp	0	small cylinders	small cylinders	G1/4" LH	G1/4" LH		

REGULATORS - SIDE ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m ³ /h	Nominal flow m ³ /h
0783653	Oxygen	2	300	4	G5/8" (BS3)	G3/8"	54	5
0783655	Oxygen	2	300	10	G5/8" (BS3)	G3/8"	21	30
0783654	Oxygen	2	300	10	CGA 540	9/16 UNF	54	30
0783643	Acetylene	2	25	1,5	G5/8" LH (BS4)	G3/8" LH	14	5
0783642	Acetylene	2	25	1,5	CGA 300	9/16 LH UNF	14	5
0783648	Argon	1	300	4	G5/8" (BS3)	G3/8"	19	5
0783649	CO ₂ *	2	200	4	0,860×14TPI (BS8)	G3/8"	20	5
F21100003	Argon	2	300	Flow 35 LPM	G5/8" (BS3)	G3/8"	35 LPM	

* for CO₂ regulators use heaters above 30 l/m.



0783643



0783652



0783656



0783651



50530

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.

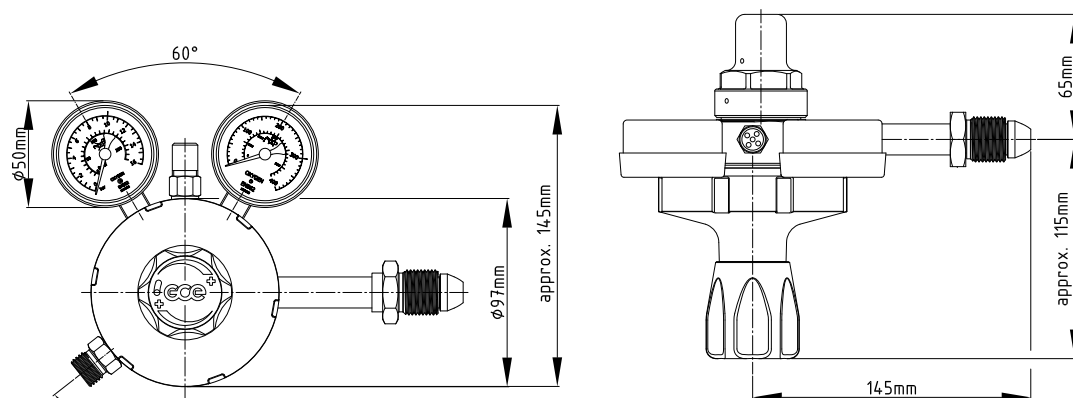
These regulators have the additional feature of being able to pipe away gases from the relief valve port, and comply with the stringent requirements of EN ISO 7291 even for strict manifold application.



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 50 mm 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

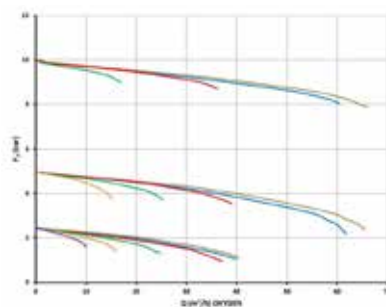
Inlet Connections exactly complying with BS-341 Standards

Max. Outlet pressure locked for operational safety

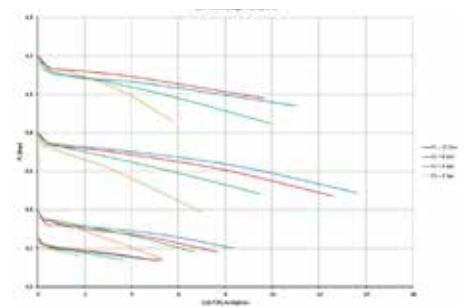
Non-detachable Ergonomic Plastic control knob

REGULATOR PARAMETERS

OXYGEN



ACETYLENE



MULTISTAGE RANGE

REGULATORS - BOTTOM ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m ³ /h	Nominal flow m ³ /h
0762144	Oxygen	2	300	4	G5/8"	G3/8"	20	5
0762145	Oxygen	2	300	10	G5/8"	G3/8"	48	30
0762143	Acetylene	2	25	1,5	G5/8" LH	G3/8" LH	10	5
0762181	Inert	2	300	2	G5/8"	G3/8"	12	1,5
0762146	Inert	2	300	4	G5/8"	G3/8"	20	5
0762147	Inert	2	300	10	G5/8"	G3/8"	48	30
0762148	Hydrogen	2	300	4	G5/8" LH	G3/8" LH	80	5
0762149	Hydrogen	2	300	10	G5/8" LH	G3/8" LH	191	30
0762152	Nitrous oxide	2	200	10	BS13	G3/8"	35	30
F21210011	Argon / CO ₂	2	300	Flow 35 LPM	G5/8"	G3/8"	35 LPM	

REGULATORS - SIDE ENTRY

Art. Nr.	Gas	Gauges	Inlet (bar)	Outlet (bar)	Inlet (form)	Outlet (form)	Flow m ³ /h	Nominal flow m ³ /h
0762198	Oxygen	2	300	4	G5/8"	G3/8"	20	5
0762199	Oxygen	2	300	10	G5/8"	G3/8"	48	30
0762196	Acetylene	2	25	1,5	G5/8" LH	G3/8" LH	10	5
0762182	Inert	2	300	2	G5/8"	G3/8"	12	1,5
0762197	CO ₂ *	2	200	4	0,860×14 TPI	G3/8"	16	5
0762153	CO ₂ *	2	200	10	0,860×14 TPI	G3/8"	40	30
0762150	Helium	2	300	4	G5/8"	G3/8"	191	5
0762151	Helium	2	200	10	G5/8"	G3/8"	35	30

* for CO₂ regulators use heaters above 40 l/min.

JETCONTROL 600/S SERIES- HIGH PRESSURE CYLINDER REGULATORS

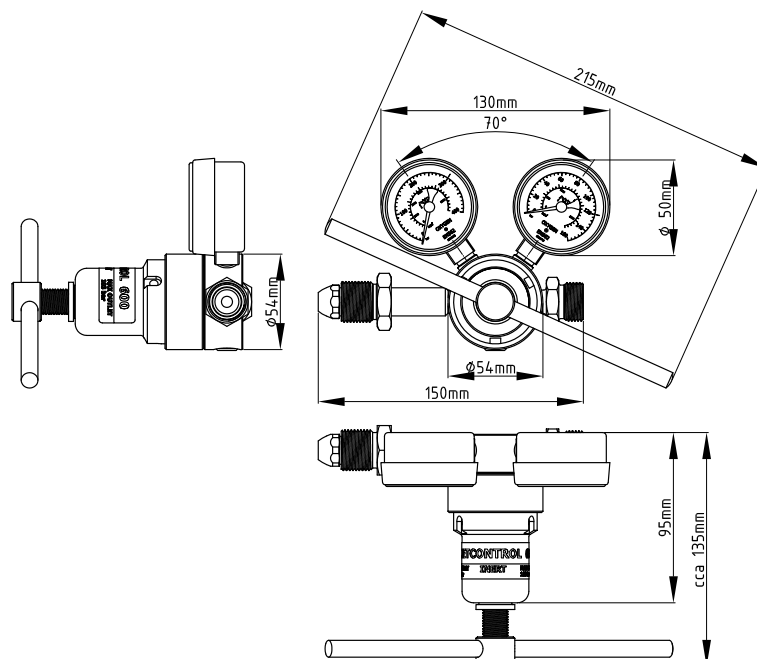
JETCONTROL 600/S Series are single stage, two gauge cylinder regulators extensively used in oil refineries, refrigeration laboratories or industrial processes requiring precise and stable delivery of high pressure industrial gasses. Regulators are primarily designed, tested and manufactured to operate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



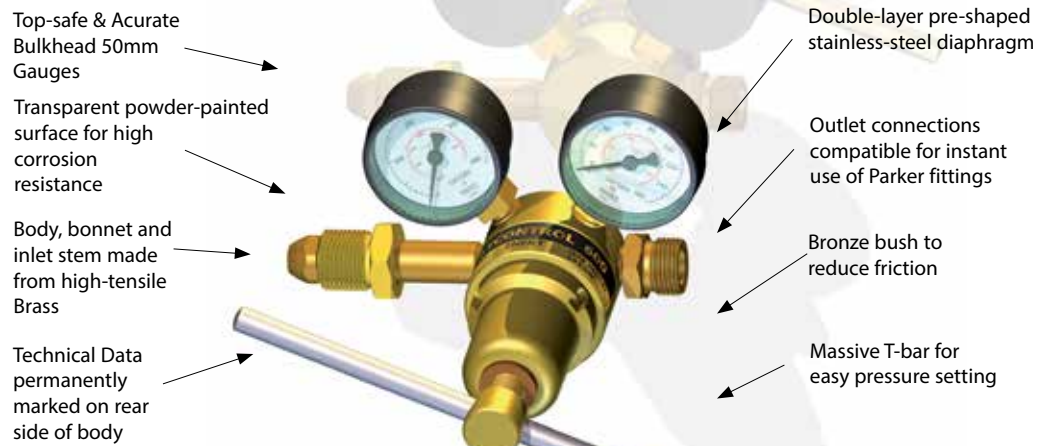
TECHNICAL DATA

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
Encapsulated 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

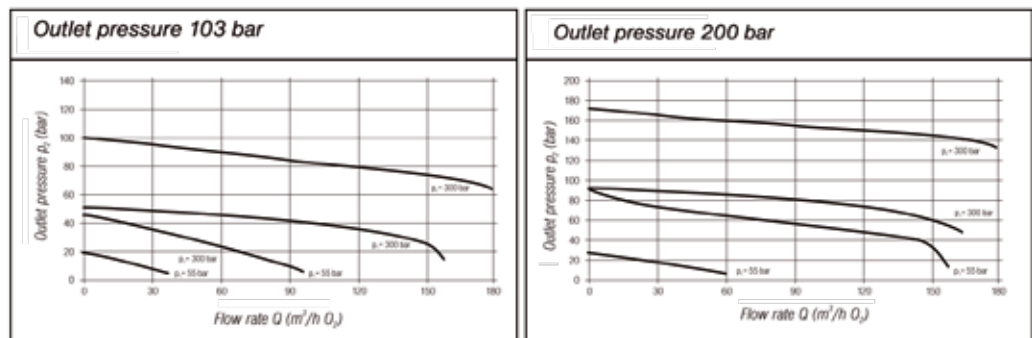
DIMENSIONS SCHEME



PRODUCT FEATURES



REGULATOR PARAMETERS



JETCONTROL 600/SERIES RANGE

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m ³ /h	Nominal flow m ³ /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	G5/8"	W11×1,25
0762583	RS 600	300	41	G5/8"	W11×1,25
0762590	RS 750	300	52	G5/8"	W11×1,25

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 ³ /h
0762398	M 600	CO ₂	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 ³ /h
0783594	OR 14	Oxygen	rear	230	14	120

"S151OL2" SERIES



"S151OL2" 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	S151OL2	Oxygen	rear	24	10

SPECIAL PURPOSE REGULATOR SUMMARY

Art. Nr.	Type	Gas	Entry	Inlet (bar)	Outlet (bar)	Flow m ³ /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 ₂	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. S151OL2 pipeline regulator is fitted with 1" BSP RH female inlet and 3/4" BSP RH male outlet.

* for CO regulators use heaters

DINCONTROL CYLINDER REGULATOR FOR 300BAR SERVICE WITH NEVOC

Hand tightened connection W30x2, soft sealed with o-ring



Art. Nr.	Gas Type	Inlet pressure	Outlet pressure	Outlet
0780974	Oxygen	300 bar	10 bar	G1/4"
0783890	Nitrogen	300 bar	50 bar	G1/4"
0780997	Nitrogen	300 bar	10 bar	G1/4"
0780998	Arg./CO ₂	300 bar	30 l/min	G1/4"
0782966	Compressed air	300 bar	10 bar	G1/4"
0782984	Hydrogen	300 bar	10 bar	G3/8" LH
0783883	Forming gas	300 bar	30 l/min	G3/8" LH
0783833	Oxygen	300 bar	20 bar	G1/4"
0783834	Arg./CO ₂	300 bar	20 bar	G1/4"
0870173	Compressed air	300 bar	20 bar	G1/4"
0870172	Hydrogen	300 bar	20 bar	G3/8" LH
548900002011P	O-ring for 300 bar (NEVOC) soft sealed connection. Packing = 10 pcs			

SAFETY PRESSURE GAUGES - BS EN 5171

1/4" BSPP



9415070

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 G5/8" 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 G5/8" 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
0762818	Combi	1

CO₂ GAS HEATERS



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

Art. Nr.	Gas	Voltage	Thread	Quantity
508315	CO ₂	240 V	BS8	1
00012450	CO ₂	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

GAS ECONOMISER GS40A AND GS40F



WHAT IS GAS ECONOMISER?

The GCE Gas Economiser is the leading accessory for shielding gas arc welding as MIG, MAG and TIG welding technologies. With its small and compact design, the GS40 can be installed downstream most common cylinder pressure regulators or outlet point regulators with flow control. GS40 stabilizes flow and optimises shielding gas pressure in the hose during welding process.

WHY TO USE GAS ECONOMISER? GS40 HELPS TO SAVE UP TO 40% OF YOUR SHIELDING GAS!

Cost of the shielding gas is important factor influencing total cost balance of the welding operation. The savings with GS40 represents up to 0,5ltr of the shielding gas on each average weld. Optimal gas delivery with proper defined pressure and flow-rate improves quality of welding. Cost saving and quality improvement in this area give the advantage to the user on the competitive market.

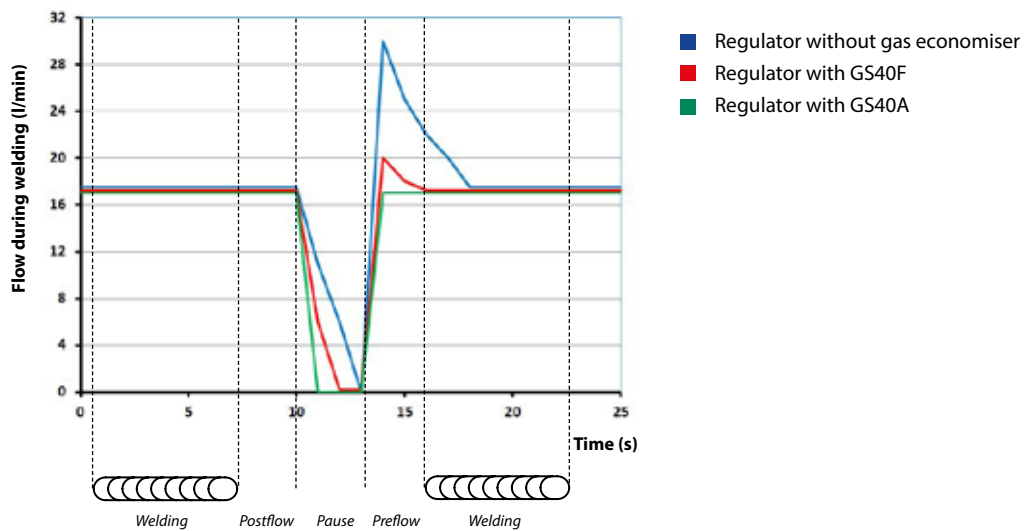
HOW DOES IT WORK?

When you close the gas flow at common pressure regulator during the welding process interruption, the outlet pressure in the connecting hose raises up much above the optimal level (acc. to ISO 2503 up to 30%). Then the volume of the gas, higher than really needed, is blowing through the system after the welding process starts again by switching on the arc on the welding torch. GS40 minimises amount of such waste gas cumulated in the connecting hose. The optimal, predefined gas flow is delivered to the welding process during all its phases.

Adjustable variant with the handwheel is to be used with regulators with flow-meter, fixed variant with regulators with litre-scaled pressure gauge.

Art. Nr.	Type	Max. inlet pressure (bar)	Inlet / Outlet connection
F21310010	Adjustable	30	9/16 UNF
F21310005	Adjustable	30	G1/4"
F21310008	Adjustable	30	G3/8"
F21310011	Fixed	30	9/16 UNF
F21310006	Fixed	30	G1/4"
F21310009	Fixed	30	G3/8"

PRINCIPLE OF GAS SAVING





FLASHBACK ARRESTORS



Gas Control Equipment

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;

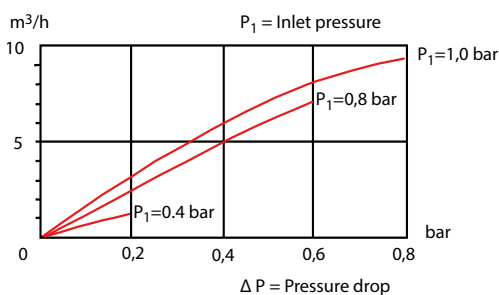
- Maximum number of safety features defined by EN730-1
- High visibility trip/reset lever coupled with quick acting reset even when pressurised
- Angled inlet to minimise hose damage
- 100% production flame tested for Flashback resistance
- Inspection dates can be marked on product for easy reference

FUNCTIONS

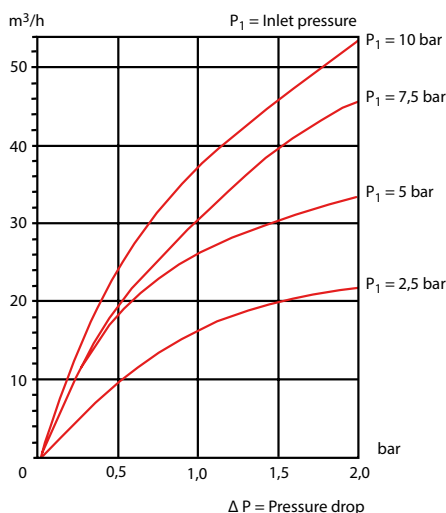
- | | |
|---|-----|
| • Flame arresting element | FA |
| • Non return valve | NV |
| • Pressure sensitive cut off valve | PV |
| • Temperature sensitive cut off valve | TV |
| • Reset mechanism to clearly advise unit activation | RM+ |



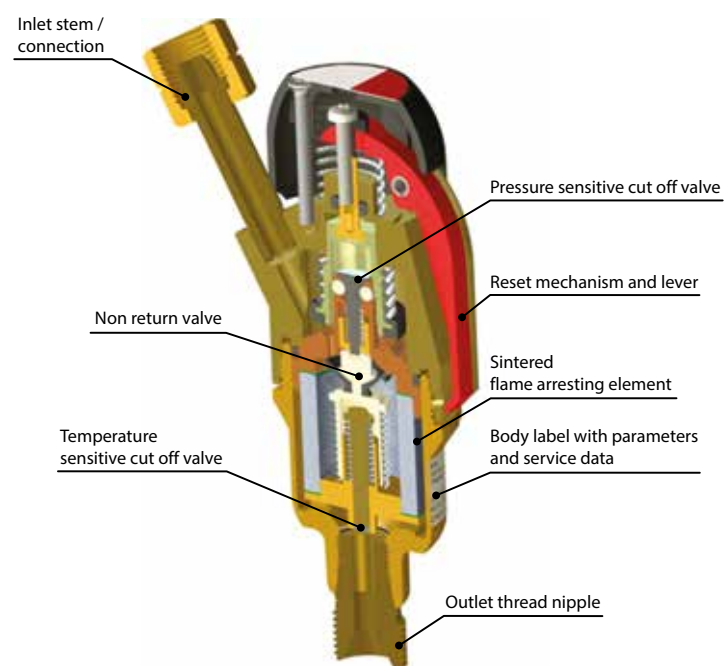
FLOW CHART - FUEL GAS



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
0764457	Oxygen	0 - 10,0 bar	G3/8"	G3/8"
0764456	Fuel gas	1,5 - 5,0 bar*	G3/8" LH	G3/8" LH
0764462	Oxygen	0 - 10,0 bar	9/16 UNF	9/16 UNF
0764461	Fuel gas	1,5 - 5,0 bar*	9/16 LH UNF	9/16 LH UNF

* 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
0764470	Oxygen	0 - 10,0 bar	G3/8"	G3/8"
0764471	Fuel gas	1,5 - 5,0 bar*	G3/8" LH	G3/8" LH
0764474	Oxygen	0 - 10,0 bar	9/16 UNF	9/16 UNF
0764475	Fuel gas	1,5 - 5,0 bar*	9/16 LH UNF	9/16 LH UNF

* 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
81900	Oxygen	G3/8"	G3/8"	Add to existing 6/8/10 inst.	1
81950	Fuel	G3/8" LH	G3/8" LH	Add to existing 6/8/10 inst.	1
81910	Oxygen	G1/4"	G1/4"	Add to existing 6 install.	1
81960	Fuel	G1/4" LH	G1/4" LH	Add to existing 6 install.	1

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



Art. Nr.	Gas	Connection	Inlet connection	Quantity
80900	Oxygen	G3/8"	Ø 6/10 mm hose nipple	1
80950	Fuel	G3/8" LH	Ø 6/10 mm hose nipple	1

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



Art. Nr.	Gas	Connection	Inlet connection	Quantity
80910	Oxygen	G1/4"	Ø 6/10 mm hose nipple	1
80960	Fuel	G1/4" LH	Ø 6/10 mm hose nipple	1

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



Art. Nr.	Gas	Inlet connection	Quantity
80700	Oxygen	Ø 7/10 mm hose nipple	1
80750	Fuel	Ø 7/10 mm 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
871121	Oxygen	G3/8"	6 mm hose	1
871122	Fuel	G3/8" LH	6 mm hose	1
871111	Oxygen	G3/8"	8 mm hose	1
871112	Fuel	G3/8" LH	8 mm hose	1
871101	Oxygen	G3/8"	10 mm hose	1
871102	Fuel	G3/8" LH	10 mm hose	1
871131	Oxygen	G1/4"	6 mm hose	5
871132	Fuel	G1/4" LH	6 mm hose	5
9401480	Oxygen	9/16 UNF	6-8 mm hose	
9402370	Fuel	9/16 UNF LH	6-8 mm hose	

NEW GENERATION OF QUICK COUPLINGS

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

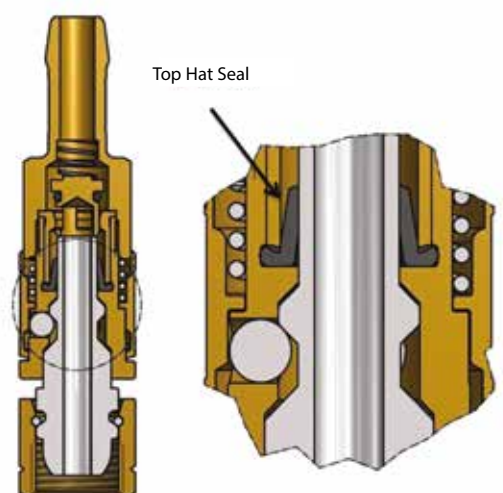
They are manufactured in accordance with EN561 / ISO7289 standard. The couplings are made of brass and the hose pins made of stainless steel.

The couplings are color coded depending on which gas they are used for and available for oxygen, fuel and inert gases.

FEATURES AND BENEFITS

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;

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



DESCRIPTION



Quick connection according to EN561 ISO 7289.



Standard hose connection according to EN 560.



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



Color coded sleeve for easy gas identification.



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



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

NEW TYPE OF MOUNTING



1. Coupling pin put into the Quick connector.



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

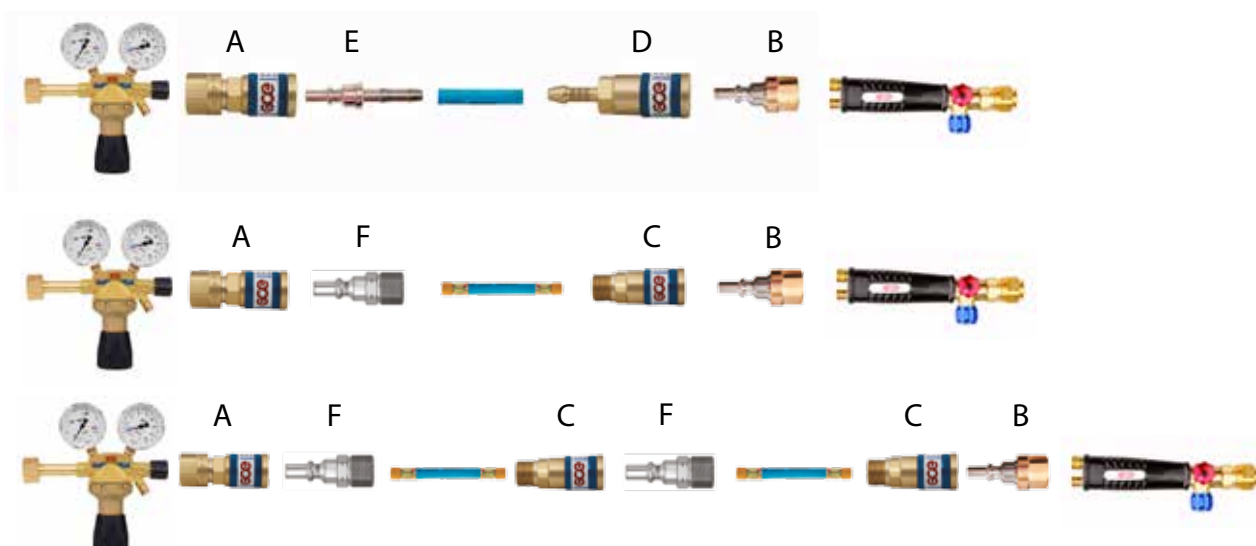


3. Mounting is finished. O-ring is visible.

COMBINATIONS OF CONNECTIONS

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

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



ISO CONNECTOR



Art. Nr.	Application	Gas	Connection
F28710007	Torch Shank	Fuel gas	G3/8" LH
F28710008	Torch Shank	Fuel gas	9/16 LH UNF
F28710009	Torch Shank	Inert gas	G1/4"
F28710010	Torch Shank	Oxygen	G3/8"
F28710011	Torch Shank	Oxygen	9/16 UNF
F28710012	Torch Shank	Oxygen	G1/4"

ISO COUPLING PIN



Art. Nr.	Application	Gas	Connection
F28710013	Hose	Fuel gas	9 mm
F28710014	Hose	Fuel gas	8 mm
F28710015	Hose	Fuel gas	6,3 mm
F28710016	Hose	Fuel gas	4 mm
F28710017	Hose	Inert gas	6,3 mm
F28710018	Hose	Inert gas	4 mm
F28710019	Hose	Oxygen	6,3 mm
F28710020	Hose	Oxygen	8 mm
F28710021	Hose	Oxygen	9 mm
F28710022	Hose	Oxygen	4 mm

ISO COUPLING THREADED



Art. Nr.	Application	Gas	Connection
F28710023	Hose	Fuel gas	G3/8" LH
F28710024	Hose	Inert gas	G1/4" RH
F28710025	Hose	Oxygen	G1/4" RH

QUICK COUPLER QC-010



Art. Nr.	Application	Gas	Connection
F28710026	Regulator	Fuel gas	G3/8" LH
F28710027	Regulator	Fuel gas	M16x1,5 LH
F28710028	Regulator	Fuel gas	9/16 LH UNF
F28710031	Regulator	Oxygen	G3/8"
F28710032	Regulator	Oxygen	G1/4"
F28710033	Regulator	Oxygen	M16x1,5
F28710034	Regulator	Oxygen	9/16 UNF
F28710029	Regulator	Inert gas	G1/4"
F28710030	Regulator	Inert gas	G3/8"

QUICK COUPLER QC-020



Art. Nr.	Application	Gas	Connection
F28710035	Hose	Fuel gas	G3/8" LH
F28710036	Hose	Inert gas	G1/4"
F28710037	Hose	Inert gas	G3/8"
F28710038	Hose	Oxygen	G3/8"
F28710039	Hose	Oxygen	G1/4"

QUICK COUPLER QC-030



Art. Nr.	Application	Gas	Connection
F28710040	Hose	Fuel gas	6,3 mm
F28710041	Hose	Fuel gas	4 mm
F28710042	Hose	Fuel gas	8 mm
F28710044	Hose	Inert gas	4 mm
F28710045	Hose	Oxygen	6,3 mm
F28710046	Hose	Oxygen	4 mm
F28710047	Hose	Oxygen	8 mm

STOPTAC QUICK COUPLINGS

The GCE STOPTAC quick coupling range has some function as the basic range i.e. the quick connecting feature plus the cut off gas function when disconnected. The Stoptac range offer a hose pin suitable for two hose dimensions – 6,3 or 10 mm.

STOPTAC HOSE ASSEMBLY



Art. Nr.	Application	Gas	Connection
9431620	Hose	Oxygen	6,3 mm; 10 mm
F150604P	Hose	Fuel gas	6,3 mm; 10 mm
F150629	Hose	Inert gas	6,3 mm; 10 mm



KIT			
Art. Nr.	Application	Gas	Connection
F150611EMB	Hose	Oxygen	6,3 mm; 10 mm
F150612EMB	Hose	Fuel gas	6,3 mm; 10 mm



STOPTAC REGULATOR ASSEMBLY



KIT			
Art. Nr.	Application	Gas	Connection
F150615EMB	Male + Female	Oxygen	6,3 mm; 10 mm, M16x1,5
F150616EMB	Male + Female	Fuel gas	6,3 mm; 10 mm, M16x1,5 LH

ISO COUPLING PIN



Art. Nr.	Application	Gas	Connection
0764872	Hose	Oxygen	ISO; 6,3 mm; 10 mm
F150607P	Hose	Oxygen (5 pcs)	ISO; 6,3 mm; 10 mm
9431810	Hose	Fuel gas	ISO; 6,3 mm; 10 mm
F150630	Hose	Inert gas	ISO; 6,3 mm; 10 mm



KIT			
Art. Nr.	Application	Gas	Connection
F150621EMB	Hose	Oxygen + Fuel gas	ISO; 6,3 mm; 10 mm



KIT			
Art. Nr.	Application	Gas	Connection
F150625EMB	Torch shank	Oxygen + Fuel gas	ISO; M16x1,5 RH LH



TORCHES AND NOZZLES



Gas Control Equipment

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 20 mm.

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
0766229 (81222)	ORBIT shank	1
0766230 (81444)	ORBIT cutting attachment	1
0766231 (81025)	ORBIT mixer	1
62017	ORBIT thread DH neck	1
81666	ORBIT heating nozzle & neck	1
9438170	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
81000	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
81903	ORBIT combined outfit	1

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



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 SITWORK
- 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



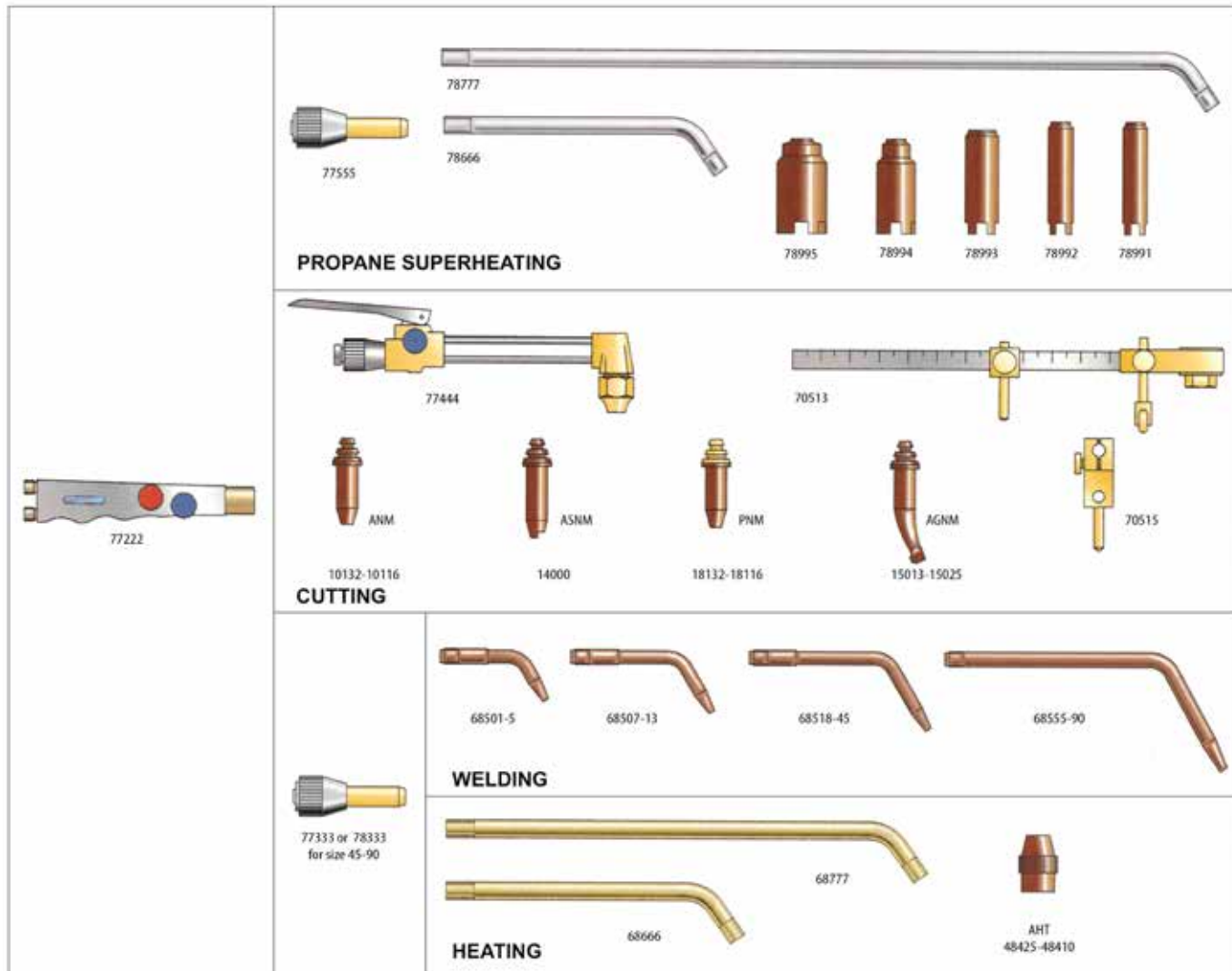
Two superheating necks are available to accommodate the range of five super heating nozzle sizes 1H to 5H which guarantee an immediate and highly intense heat output from 70,000 to 600,000 Btu/h on castings and large articles.

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
88090C	18" (460 mm)	90°	1
88092C	18" (460 mm)	180°	1
0767949	35" (920 mm)	75°	1
0764510	33" (850 mm)	90°	1
88096C	36" (900 mm)	90°	1
88098C	36" (900 mm)	180°	1
0764511	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



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
0767699 (87090)	18" (460 mm)	90°	1
0767692 (87097)	36" (900 mm)	75°	1
0767690	18" (470 mm)	75°	1
0767696	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
70510P	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 22x1.5	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.

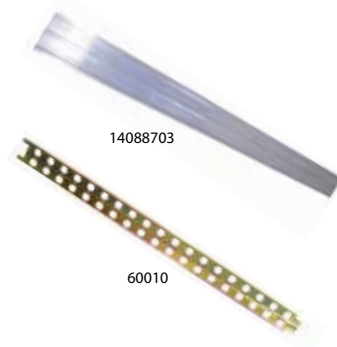
Art. Nr.	Description	Quantity
1282575	Mark 4 Gas Economiser	1

GCE proFIT®

PORTABLE STRAIGHT LINE CUTTING MACHINE



GCE proFIT®



Art. Nr. Description

548900060001	GCE proFIT® machine with one nozzle mix torch, without track
548900060000	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.
0766262	Nozzle mix cutting torch	APMYF	ANME, AMD COOLEX, PNME, K50PUZ	1
60010	BIR Mini, injector cutting torch	A	AC, (ASD)	2
304605940	BIR Mini, injector cutting torch	PMYF	PUZ, (PSD)	2
14008263	FIT Mini, injector cutting torch	A	MA133	3
14008278	FIT Mini, injector cutting torch	PMYF	MP133, (MY133)	3

ACCESSORIES AND SPARE PARTS

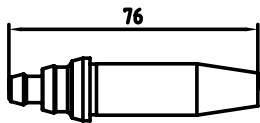


Art. Nr. Description

14088703	Stabile guide rail track 2 m, extruded aluminium profile with connecting clip
60010	Basic guide rail track 2 m, Zn-coated steel
304605940	Extension kit for second cutting torch (proper torch is to be ordered separately)
14008263	Flashback Arrestor, Heating oxygen, G 1/4"
14008278	Flashback Arrestor, Fuel gas, G 3/8" LH
14008157	Brass cleaning brush
54890422520	Stainless steel conical cleaning needle for cutting oxygen channels
304604911-JR	Gas manifold for one cutting torch
304605911-JR	Gas manifold for two cutting torches
304604914	Cutting torch holder
304604924	Circle diameter extension

CUTTING NOZZLES

ANM SHORT PATTERN



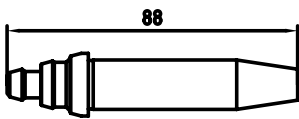
6 heating holes, 76 mm long.

USE:

Acetylene fuel gas.

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

ANME LONG PATTERN



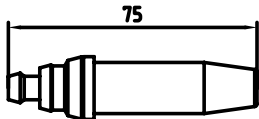
6 heating holes, 88 mm long.

USE:

Acetylene fuel gas.

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

PNM SHORT PATTERN



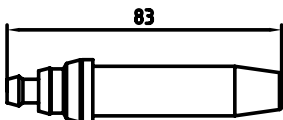
9 spline inner, 76 mm long.

USE:

Propane fuel gas.

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

PNME LONG PATTERN



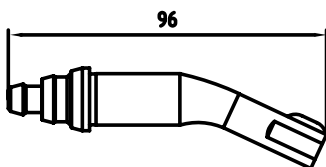
9 spline inner, 88 mm long.

USE:

Propane fuel gas.

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

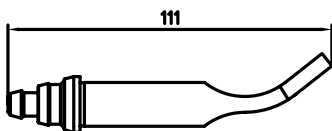
AGNM GOUGING NOZZLES



94 mm long.
USE:
 Acetylene fuel gas.

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

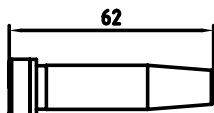
ARCNM RIVET CUTTING NOZZLE



USE:
 Acetylene fuel gas.

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

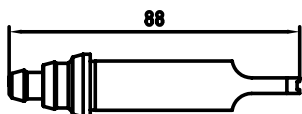
PHS/VVC MACHINE CUTTING NOZZLES - CHROMED - FOR USE WITH PROPANE



USE:
 Acetylene fuel gas.

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

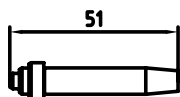
HA311-1 SHEET METAL NOZZLE



88 mm long.
 Fuel gas: Acetylene

Art. Nr.	Range	Size	Quantity
0768641	0 - 3 mm	0,3	1

AFN TYPE (ORBIT) CUTTING NOZZLES

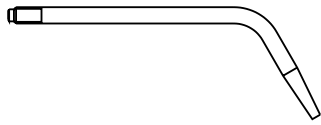


Fuel gas: Acetylene

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

WELDING & HEATING NOZZLES

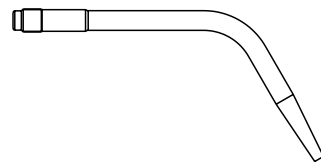
LIGHTWEIGHT SWAGED COPPER NOZZLES



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

Art. Nr.	Range	Size	Quantity
0766232 (62401)	to 1 mm	size 1	1
0766233 (62402)	1 - 1,5 mm	size 2	1
0766234 (62403)	1,5 - 2 mm	size 3	1
0766235 (62405)	2 - 2,5 mm	size 5	1
0766236 (62407)	2,5 - 3 mm	size 7	1
0766237 (62410)	3 - 4 mm	size 10	1
0766238 (62413)	4 - 5 mm	size 13	1
0766239 (62418)	5 - 6 mm	size 18	1
0766240 (62425)	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
0766244 (68501)	to 1 mm	size 1	1
0766245 (68502)	1 - 1,5 mm	size 2	1
0766246 (68503)	1,5 - 2 mm	size 3	1
0766247 (68505)	2 - 2,5 mm	size 5	1
0766248 (68507)	2,5 - 3 mm	size 7	1
0766249 (68510)	3 - 4 mm	size 10	1
0766250 (68513)	4 - 5 mm	size 13	1
0766251 (68518)	5 - 6 mm	size 18	1
0766252 (68525)	6 - 8 mm	size 25	1

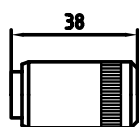
MODEL 'O' BRASS WELDING TIPS



For use on Model 'O' Torch.

Art. Nr.	Size	Quantity
47100	size 1	1
47200	size 2	1
47300	size 3	1
47400	size 4	1
47500	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
48425	AHT 25 heating tip	52 000 Btu/H	1
48450	AHT 50 heating tip	91 000 Btu/H	1
48410	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.



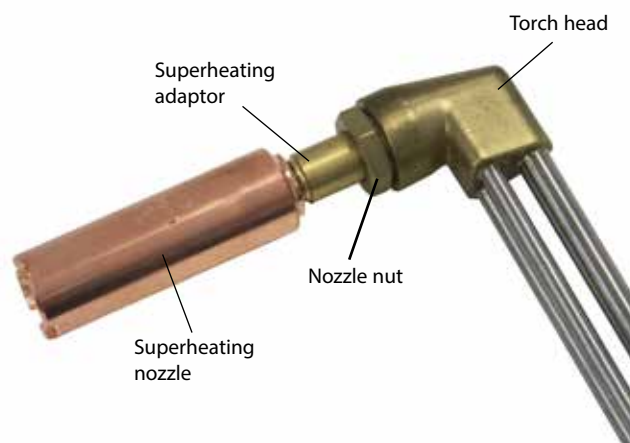
Art. Nr.	Size	Output	Quantity
0769472 (78991)	1H	72 000 - 163 000 Btu/H	1
0769473 (78992)	2H	102 000 - 188 000 Btu/H	1
0769474 (78993)	3H	183 000 - 361 000 Btu/H	1
0769475 (78994)	4H	236 000 - 406 000 Btu/H	1
0769476 (78995)	5H	250 000 - 618 000 Btu/H	1
0768929	Superheating adaptor for NM Cutters		1



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.



RUBBER HOSES - BULK

SINGLE HOSE OXYGEN (BLUE) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Oxygen in cutting and welding and allied processes. Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Blue synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

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 (RED) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Acetylene in cutting and welding and allied processes. Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Red synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

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 (ORANGE) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Propane/Butane in cutting and welding and allied processes. Suitable for Liquid Petroleum Gas (LPG), Methylacetylene-propadiene (MPS) gas, Compressed Natural Gas (CNG).

- Inner tube: Synthetic rubber resistant to LPG and propane/Butane gases
- Reinforcement: High tensile synthetic textile
- External cover: Orange synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

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

SINGLE HOSE ARGON (BLACK) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Argon in cutting and welding and allied processes. Suitable also for hydrogen, CO₂, Nitrogen for welding and cutting. Not suitable for LPG, MPS and CNG

- Inner tube: Synthetic rubber resistant to LPG and propane/Butane gases
- Reinforcement: High tensile synthetic textile
- External cover: Black synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272140612040	Hose-smooth	6×12 mm	40 m

HOSE CLIPS



HOSE CLIPS MUJ-FIT ONE EAR

Stainless steel clip with one ear and double coating for quick mounting and to protect the hose from pinches and damages.

MUJ-FIT

Art. Nr.	Description	Hoses	Quantity
WP24020	MUJ-FIT 13 (one ear)	6×13; 6×14 mm	20
WP24022	MUJ-FIT 15 (one ear)	8×15; 8×16 mm	20

OETIKER

Art. Nr.	Description	Hoses	Quantity
90330	Oetiker (two ear) 13-15	6×13; 6×14 mm	20
90340	Oetiker (two ear) 15-18	8×15; 8×16 mm	20

PLIERS FOR HOSE CLIP



Pliers with not sharp jaws to tighten the clips. No damage for both clip and hose.

JUBILEE

Art. Nr.	Description	Hoses	Quantity
C10000046	Jubilee (screwdriver) 8-12	5×12 - 6×13; 6×14 mm	20
C10000047	Jubilee (screwdriver) 10-16	8×15; 8×16 mm	20

Art. Nr.	Description	Hoses	Quantity
WP90352	Jubilee (screwdriver) 12-22	-	20

RUBBER HOSES - BULK

TWIN HOSE OXYGEN/ACETYLENE (BLUE/RED) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



WORKING PRESSURE
20 bar

Rubber twin hose for use with Oxygen/Acetylene in cutting and welding and allied processes.
Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Blue/red synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

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
272333066100	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	3,5×10×10 (17+17) mm	25 m
272333110081	Twin hose OX/AC	3,5×10×10 (17+17) mm	40 m

TWIN HOSE OXYGEN/PROPANE (BLUE/ORANGE) ISO 3821 (FOR WELDING AND ALLIED PROCESSES)



WORKING PRESSURE
20 bar

Rubber twin hose for use with Oxygen/Propane in cutting and welding and allied processes.

Suitable for Liquid Petroleum Gas (LPG), Methylacetylene-propadiene (MPS) gas, Compressed Natural Gas (CNG)

- Inner tube OXY: Synthetic rubber resistant to the welding gases
- Inner tube PROP: Synthetic rubber resistant to LPG and Propane/Butane gases
- Reinforcement: High tensile synthetic textile
- External cover: Blue/red synthetic rubber resistant to abrasion and weather

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821

Art. Nr.	Description	Wall thickness I.D (O.D.)	Length
272333030609	Twin hose OX/PRO	6,3×16,3 mm (OX) 9,0×16,0 mm (PRO)	50 m

According to standards the rubber hoses do not expire. It's reasonable to replace them periodically according to their wear and the common sense.

RUBBER HOSES - WITH FITTINGS

SINGLE HOSE OXYGEN (BLUE) ISO 3821 WITH FITTINGS AND NON RETURN VALVE (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Oxygen in cutting and welding and allied processes.
Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Blue synthetic rubber resistant to abrasion and weather
- **NON RETURN VALVE** in the outlet

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821(hose) EN 1256 (hose assembly)

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
841065	6 × 13 mm	G3/8" - G1/4" NRV	5 m
841067	6 × 13 mm	G3/8" - G3/8" NRV	5 m
841068	6 × 13 mm	G3/8" - G3/8" NRV	10 m
841069	6 × 13 mm	G3/8" - G1/4" NRV	10 m
841089	8 × 15 mm	G3/8" - G3/8" NRV	10 m
841105	10 × 17 mm	G3/8" - G3/8" NRV	5 m
841109	10 × 17 mm	G3/8" - G3/8" NRV	10 m
841102	10 × 17 mm	G3/8" - G3/8" NRV	20 m
841103	10 × 17 mm	G3/8" - G3/8" NRV	30 m

NRV = non return valve included

SINGLE HOSE ACETYLENE (RED) ISO 3821 WITH FITTINGS AND NON RETURN VALVE (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Acetylene in cutting and welding and allied processes.
Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Red synthetic rubber resistant to abrasion and weather
- **NON RETURN VALVE** in the outlet

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards	ISO 3821(hose) EN 1256 (hose assembly)

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849065	6 × 13 mm	G3/8" LH - G1/4" LH NRV	5 m
849064	6 × 13 mm	G3/8" LH - G3/8" LH NRV	5 m
849068	6 × 13 mm	G3/8" LH - G3/8" LH NRV	10 m
849069	6 × 13 mm	G3/8" LH - G1/4" LH NRV	10 m
849089	8 × 15 mm	G3/8" LH - G3/8" LH NRV	10 m
849105	10 × 17 mm	G3/8" LH - G3/8" LH NRV	5 m
849109	10 × 17 mm	G3/8" LH - G3/8" LH NRV	10 m
849102	10 × 17 mm	G3/8" LH - G3/8" LH NRV	20 m
849103	10 × 17 mm	G3/8" LH - G3/8" LH NRV	30 m

NRV = non return valve included

SINGLE HOSE PROPANE/BUTANE (ORANGE) ISO 3821 WITH FITTINGS AND NON RETURN VALVE (FOR WELDING AND ALLIED PROCESSES)



Rubber hose for use with Propane/Butane in cutting and welding and allied processes.

Suitable for Liquid Petroleum Gas (LPG), Methylacetylene-propadiene (MPS) gas, Compressed Natural Gas (CNG)

- Inner tube: Synthetic rubber resistant to LPG and Propane/Butane gases
- Reinforcement: High tensile synthetic textile
- External cover: Orange synthetic rubber resistant to abrasion and weather
- **NON RETURN VALVE** in the outlet

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821(hose) EN 1256 (hose assembly)

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849113	6x13 mm	G3/8" LH - G3/8" LH NRV	5 m
849114	6x13 mm	G3/8" LH - G3/8" LH NRV	10 m
849117	8x15 mm	G3/8" LH - G3/8" LH NRV	10 m
849119	10x17 mm	G3/8" LH - G3/8" LH NRV	5 m
849120	10x17 mm	G3/8" LH - G3/8" LH NRV	10 m
849121	10x17 mm	G3/8" LH - G3/8" LH NRV	20 m
849122	10x17 mm	G3/8" LH - G3/8" LH NRV	30 m

NRV = non return valve included

RUBBER HOSES - WITH FITTINGS

TWIN HOSE OXYGEN (BLUE/RED) ISO 3821 WITH FITTINGS AND NON RETURN VALVE (FOR WELDING AND ALLIED PROCESSES)



Rubber twin hose for use with Oxygen/Acetylene in cutting and welding and allied processes.

Not suitable for LPG, MPS and CNG.

- Inner tube: Synthetic rubber resistant to the welding gases
- Reinforcement: High tensile synthetic textile
- External cover: Blue/red synthetic rubber resistant to abrasion and weather
- **NON RETURN VALVE** in the outlet

TECHNICAL DATA

Temperature:	-20°C / +60°C
Safety factor:	3:1
Marking:	In compliance with the below mentioned standard
Working pressure:	20 bar
Bursting pressure:	60 bar
Standards:	ISO 3821(hose) EN 1256 (hose assembly)

Art. Nr.	I.D. x Wall thickness x O.D.	Connections	Length
849060	6,3x3,5-6,3x3,5 (6x13) mm	G3/8" LH - RH G1/4" LH - RH NRV	5 m
841080	8x3,5-8x3,5 (8x15) mm	G3/8" LH - RH G3/8" - RH NRV	5 m
841081	8x3,5-8x3,5 (8x15) mm	G3/8" LH - RH G3/8" - RH NRV	10 m

HOSE CONNECTION AND FITTINGS

HOSE TAILPIECES



Art. Nr.	Hose inner diameter	Suitable for nut	Pack size
31AEN	5 mm (3/16")	G3/8" LH and RH	1
B599380 (31BEN)	6 mm (1/4")	G1/4" LH and RH	10
B734980 (31EN)	6 mm (1/4")	G3/8" LH and RH	10
B599440 (30EN)	8 mm (5/16")	G3/8" LH and RH	10
9430800 (29AEN)	10 mm (3/8")	G3/8" LH and RH	5

HOSE SPLICERS



Art. Nr.	Hose inner diameter	Pack size
9429620	6,3 mm (5/16")	1
14008094	8 mm (5/16")	1

HOSE CONNECTION NUTS



Art. Nr.	Type	Pack size
B599400 (28AENP)	G1/4" RH	10
B712010 (27AEN)	G3/8" RH	10
B712020 (28BEN)	G1/4" LH	10
B599430 (27BENP)	G3/8" LH	10

HOSE COUPLERS



Art. Nr.	Type	Pack size
25A	G1/4" equal RH	1
26A	G3/8" x G1/4" unequal RH	1
24A	G3/8" equal RH	1
25B	G1/4" equal LH	1
26B	G3/8" x G1/4" unequal LH	1
24B	G3/8" 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
47A	Oxygen	G3/8" RH	G3/8" RH MALE
47B	Acetylene	G3/8" LH	G3/8" LH MALE

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



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

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 Tk ^{ness} mm in	Nozzle size	Operating pressure				Gas consumption				
		Acetylene		Oxygen		Acetylene		Oxygen		
		bar	PSI	bar	PSI	l/h	ft ³ /h	l/h	ft ³ /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 ³ /h	l/h	ft ³ /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 considerable 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 ³ /h	l/h	ft ³ /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 ³ /h	l/h	ft ³ /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	Tk ^{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 ³ /h	l/h	ft ³ /h	l/h	ft ³ /h	l/h	ft ³ /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	Tk ^{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 ³ /h	l/h	ft ³ /h	l/h	ft ³ /h	l/h	ft ³ /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	Tk ^{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 ³ /h	l/h	ft ³ /h	l/h	ft ³ /h	l/h	ft ³ /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)

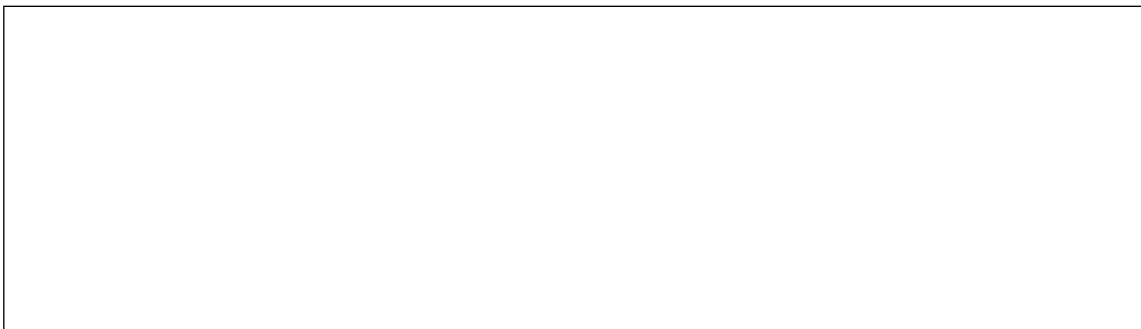
Material	Tk ^{ness} mm in	Nozzle size	Operating pressure				Gas consumption				Approx. Cutting Speeds mm/m in/m			
			Oxygen		Acetylene		Cutting Ox		Heating Ox			Acetylene		
			bar	PSI	bar	PSI	l/h	ft ³ /h	l/h	ft ³ /h	l/h	ft ³ /h	l/h	ft ³ /h
6	1/4	1/32	2,1	30	0,2	3	1000	36	1300	48	300	12	430	17
13	1/2	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 cm² 1 PSI - 0,069 bar.
3. Gas consumption in LITRES PER HOUR (l/h).

NOTES

A series of horizontal dotted lines for taking notes, starting below the 'NOTES' header and extending to the bottom of the page.

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 900 people. GCE Group includes four business areas – Cutting&Welding technology, Valves, Healthcare and Druva. 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.



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