



# Machine Cutting Equipment

**Torches and Nozzles  
for High Performance**

EDITION 1/2009

**GCE Group - the European market leader in gas control equipment**  
**GCE world-wide: <http://www.gcegroup.com>**



GCE is an experienced developer and producer of gas control equipment since the beginning of the 20th Century. GCE is one of the world's leading manufacturers in this field and now employs over 1200 people around the world.

The company has grown through a combination of a dedicated workforce and an in depth knowledge of pressure and flow control related to gas welding and cutting technology, medical systems, process applications and high purity requirements.

GCE aim is to support its customers in their demands for safe and reliable products manufactured in accordance with the latest governing standards.



## Machine Cutting Equipment

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## Machine Cutting Torch BIR+

### Machine Cutting Torch BIR+ – Injector type



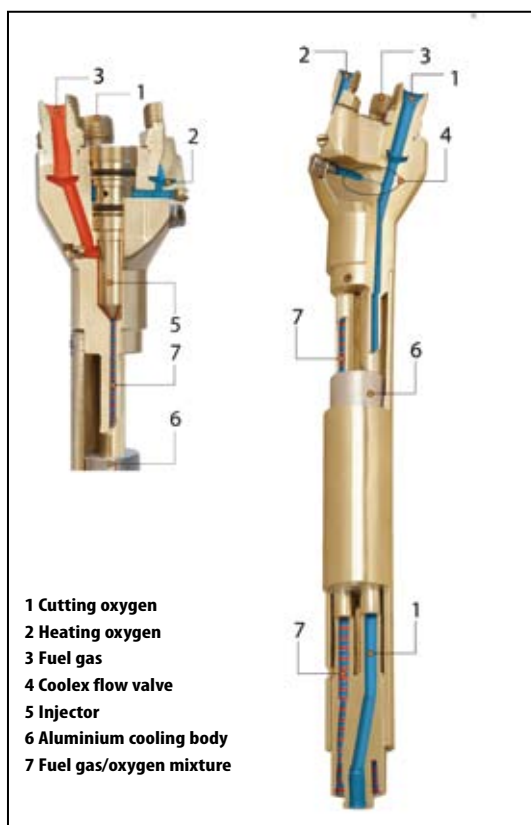
Suitable for use with cutting nozzle types (AC, A-SD, A-HD) for Acetylene and (PUZ, P-SD, P-HD) for Propane, natural gas and mixed fuel gases.

Machine cutting torches are provided with an Oxygen cool flow valve (GCE patent). This effects a higher nozzle service life by an efficient cooling of the cutting system while preheating the material to combustion temperature.

Art. Nr.	Length / dia	Gas	Connection	Note
14055160	220/32	A	2xUNF 9/16", 1xUNF 9/16"LH	incl. BV12 + valves
14055170	220/32	A	2xUNF 9/16", 1xUNF 9/16"LH	incl. BV12
14055250	110/30	A	G3/8", G3/8"LH, G1/4"	
14055239	110/32	A	G3/8", G3/8"LH, G1/4"	
14055235	220/30	A	G3/8", G3/8"LH, G1/4"	
14055218	220/32	A	G3/8", G3/8"LH, G1/4"	
14055237	320/30	A	G3/8", G3/8"LH, G1/4"	
14055241	320/32	A	G3/8", G3/8"LH, G1/4"	
14055233	320/34	A	G3/8", G3/8"LH, G1/4"	
14055243	415/34	A	G3/8", G3/8"LH, G1/4"	
14055217	220/32	F	G3/8", G3/8"LH, G1/4"	
14055161	220/32	PM	2xUNF 9/16", 1xUNF 9/16"LH	incl. BV12 + valves
14055168	220/35	PM	2xUNF 9/16", 1xUNF 9/16"LH	incl. BV12 + valves
14055242	110/32	PM	G3/8", G3/8"LH, G1/4"	
14055236	220/30	PM	G3/8", G3/8"LH, G1/4"	
14055219	220/32	PM	G3/8", G3/8"LH, G1/4"	
14055238	320/30	PM	G3/8", G3/8"LH, G1/4"	
14055240	320/32	PM	G3/8", G3/8"LH, G1/4"	
14055234	320/34	PM	G3/8", G3/8"LH, G1/4"	
14055245	85/32	PM	G3/8", G3/8"LH, G1/4"	
14055222	220/32	PM	G3/8", G3/8"LH, G1/4"	H-type connection for PHS
14055244	320/32	PM	G3/8", G3/8"LH, G1/4"	H-type connection for PHS

Other lengths and diameters on customer request.

### Features of Machine Cutting Torch BIR+



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

#### Integrated Cool flow valve

- The BIR+ contains a cool flow valve which provides a small amount of oxygen during preheating the basic material. This small oxygen flow is streaming through the cutting oxygen channel to cool down the complete torch system and prevents the reverse flow of hot gases in to the cutting nozzle. The nozzle will be protected against early contamination.
- Longer nozzle life time
- Lower system temperature
- Max. 40 °C at mixing system
- Constant flow channels
- Constant gas flows

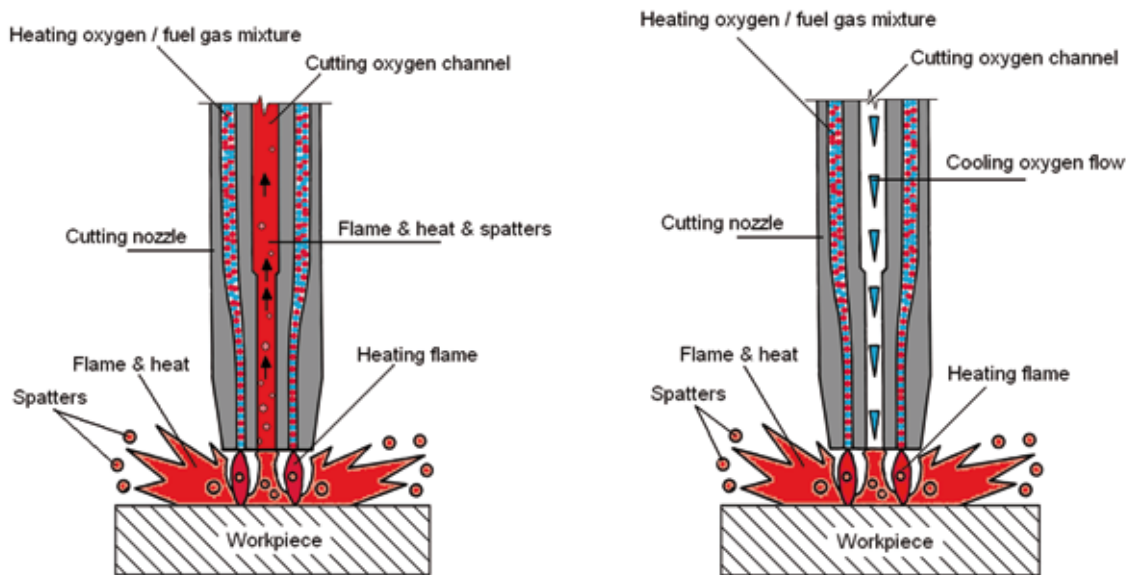
#### Safety Injector

A safety injector covered in a stable brass body is the basis for a safe function. Any overheating will be transported away from the injector which protects the torch against sustained backfire.

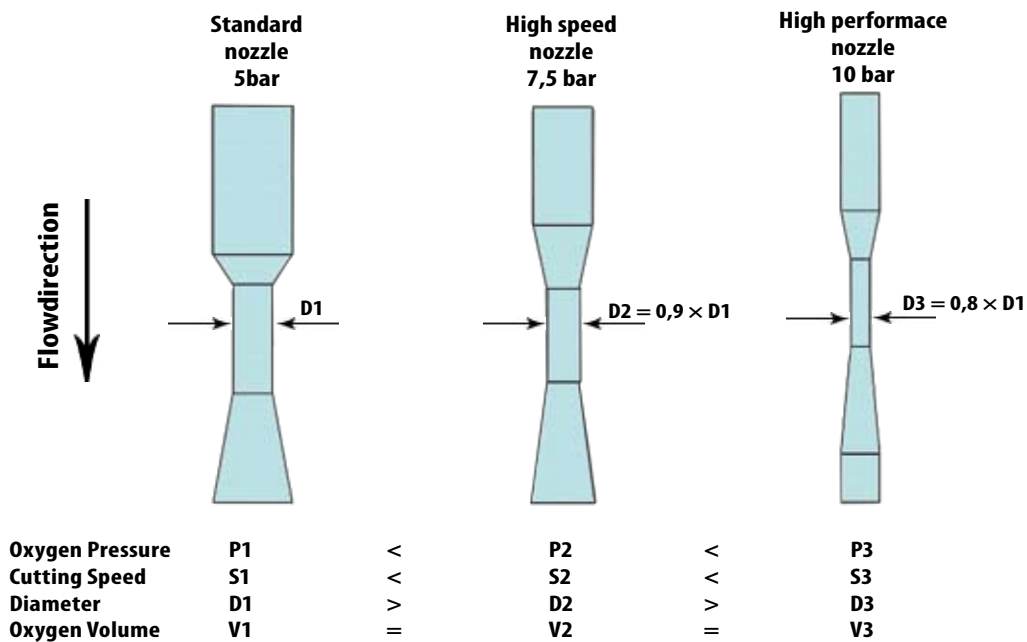
Downstream of the injector an aluminium cooling unit completes the cooling function of the BIR torch which guarantees high operation safety. Sustained backfire is practically impossible, also during extremely high load.

- High operation safety while hole piercing
- High service life of torch + nozzle
- High economy
- Less maintenance

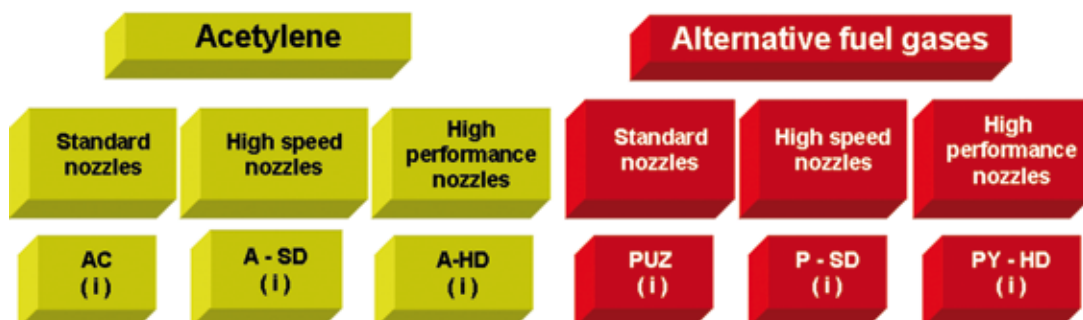
## Cooling System Description



## Design of Cutting Oxygen Channel



## Overview of Cutting Nozzles for BIR+



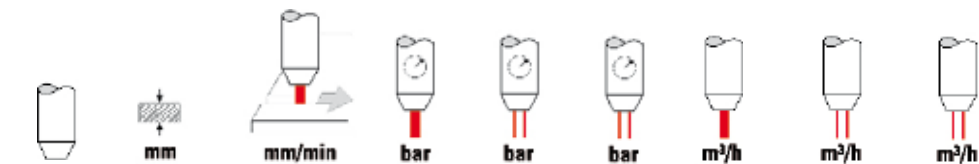
## Cutting Nozzles AC – Acetylene

Cutting nozzle



Heating nozzle

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



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

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

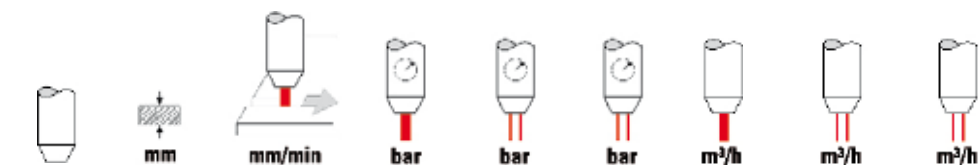
## Cutting Nozzles A-SD – Acetylene

Cutting nozzle



Heating nozzle

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



Art. Nr	mm	mm/min	Cutting ox bar	Heating ox bar	Acet. bar	Cutting ox m³/h	Heating ox m³/h	Acet. m³/h
<b>14001217</b>	3 - 5	750 - 800	2,0 - 3,0	2,0 - 2,5	0,6	0,4 - 0,5	0,4	0,3
<b>14001218</b>	6 - 10	700 - 750	4,0 - 5,0	2,5	0,6	1,2 - 1,5	0,5	0,35
<b>14001219</b>	10 - 25	500 - 650	6,5 - 7,5	2,5	0,6	3,2 - 3,7	0,5	0,35
<b>14001220</b>	25 - 40	420 - 500	6,5 - 8,5	2,5	0,6	4,6 - 5,5	0,5	0,35
<b>14001221</b>	40 - 60	360 - 420	6,5 - 8,5	2,5	0,6	5,6 - 7,1	0,5	0,35
<b>14001222</b>	60 - 100	270 - 360	6,5 - 8,5	2,5	0,6	9,1 - 11,0	0,5	0,35
<b>14001223</b>	100 - 150	210 - 270	6,5 - 7,0	3,5	0,6	12,1 - 12,9	0,6	0,5
<b>14 001224</b>	150 - 230	140 - 210	6,5 - 7,5	6,5 - 7,5	0,6	19,4 - 22,0	1,1	0,85
<b>14001225</b>	230 - 300	110 - 150	6,5 - 7,5	6,5 - 7,5	0,6	28,5 - 32,5	1,1	0,85
<b>14001226</b>	3 - 150	Heating nozzle						
<b>14001238</b>	150 - 300	Heating nozzle						

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. This nozzle requires max. 8,5 bar oxygen at torch inlet.

## High Speed Cutting

## Cutting Nozzles A-HD – Acetylene

Cutting nozzle



Heating nozzle

**High Performance Cutting**

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

Art. Nr.	mm	mm/min	bar	bar	bar	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h
			Cutting ox	Heating ox	Acet.	Cutting ox	Heating ox	Acet.
14001519	3 - 5	750 - 800	2,0 - 3,0	2,5	0,5	0,4 - 0,5	0,4	0,35
14001520	6 - 10	700 - 750	4,0 - 5,0	3	0,5	1,0 - 1,2	0,5	0,4
14001521	10 - 25	530 - 725	9,0 - 12,0	3	0,5	2,7 - 3,6	0,5	0,4
14001522	25 - 50	420 - 530	8,5 - 11,5	3	0,5	3,6 - 4,6	0,5	0,4
14001523	50 - 75	330 - 420	9,0 - 12,0	3	0,5	6,7 - 8,6	0,5	0,4
14001524	75 - 100	280 - 300	9,5 - 11,5	3	0,6	8,9 - 10,1	0,5	0,4
14001525	100 - 150	210 - 280	6,5 - 7,0	4	0,6	12,1 - 12,9	0,6	0,5
14001224	150 - 230	140 - 210	6,5 - 7,5	6,5 - 7,5	0,6	19,4 - 22,0	1,1	0,85
14001225	230 - 300	110 - 150	6,5 - 7,5	6,5 - 7,5	0,6	28,5 - 32,5	1,1	0,85
14001526	3 - 150	Heating nozzle						
14001238	150 - 300	Heating nozzle						

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. This nozzle requires 12 bar oxygen at the torch inlet.

## Cutting Nozzles PUZ – Propane/Natural Gas and Mixed Fuel Gases

Cutting nozzle



Heating nozzle

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

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

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

## Cutting Nozzles P-SD – Propane/Natural Gas and Mixed Fuel Gases



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

### High Speed Cutting

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

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

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. This nozzle requires max. 9,5 bar oxygen at torch inlet.

## Cutting Nozzles P-HD – Propane/Natural Gas and Mixed Fuel Gases



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

### High Performance Cutting

Art. Nr.	mm	mm/min	bar	bar	bar	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h
			Cutting ox	Heating ox	Fuel g.	Cutting ox	Heating ox	Fuel g.
14001511	3 - 5	750 - 800	2,0 - 3,0	2,0 - 2,5	0,2	0,4 - 0,5	1	0,25
14001512	6 - 10	690 - 750	4,0 - 5,0	2,5	0,2	1,0 - 1,2	1,3	0,33
14001513	10 - 25	500 - 690	9,0 - 12,0	2,5	0,2	2,7 - 3,6	1,3	0,38
14001514	25 - 50	390 - 500	8,5 - 11,0	2,5	0,2	3,6 - 4,6	1,3	0,38
14001515	50 - 80	320 - 390	9,0 - 12,0	2,5	0,2	6,7 - 8,6	1,3	0,38
14001516	80 - 100	280 - 320	9,5 - 11,0	2,5	0,2	8,9 - 10,1	1,3	0,38
14001250*	100 - 150	180 - 270	6,5 - 7,5	2,5	0,3	11,5 - 13,0	1,4	0,35
14001233	100 - 200	180 - 270	7,5 - 9,5	4,5	0,6	13,3 - 15,6	2,4	0,6
14001234	200 - 250	130 - 180	6,5 - 8,5	4,5	0,6	18,0 - 22,0	2,4	0,6
14001235	250 - 300	110 - 130	6,5 - 8,5	5	0,6	23,0 - 30,0	2,5	0,62
14001517	3 - 100	Heating nozzle, propane						
14001518	3 - 100	Heating nozzle, mixed fuel gas						
14001237	100 - 300	Heating nozzle						

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

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. This nozzle requires 12 bar oxygen at the torch inlet.

## Cutting Nozzles PHS - Propane/Natural Gas and Mixed Fuel Gases



### High Speed Cutting

High speed machine cutting nozzle, copper chrome plated cutting nozzle and brass heating nozzle, 62 mm long with H-type connection. Nozzle is delivered in one- piece package, together cutting + heating nozzle.

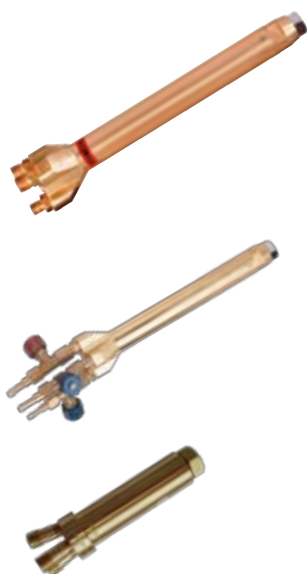


Art. Nr.	Size	mm	mm/min	Cutting ox. bar	Heating ox. bar	Fuel g. bar
<b>0769216</b>	5/0	1 - 4	750	3	0,4	min. 0,02
<b>0769217</b>	4/0	4 - 6	700	3	0,5	"
<b>0769218</b>	3/0	6 - 9	650	5	0,7	"
<b>0769219</b>	00	9 - 12,5	630	5	0,7	"
<b>0769220</b>	0	12,5 - 20	600	6	0,7	"
<b>0769221</b>	0 1/2	20 - 35	550	7	0,7	"
<b>0769222</b>	1	35 - 60	400	7	0,7	"
<b>0769223</b>	1 1/2	60 - 75	310	7	0,7	"
<b>0769224</b>	2	75 - 125	240	7	0,7	"
<b>0769225</b>	2 1/2	125 - 150	210	7	0,7	"
<b>0769226</b>	3	150 - 175	190	7	0,7	"
<b>0769227</b>	4	175 - 200	170	7	0,7	"
<b>0769228</b>	5	200 - 225	150	6	0,7	"
<b>0769229</b>	5 1/2	225 - 250	130	6	0,7	"

Above mentioned cutting speed is estimated recommended value. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

## Machine Cutting Torch BGR (X541)

### Machine Cutting Torch BGR (X541) – Nozzle Mix Type



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

#### Torch type BGR

Art. Nr.	Length/dia	Gas	Connection	Note
14056420	220/30	APMY	G3/8", G3/8"LH, G1/4"	
14056220	220/32	APMY	G3/8", G3/8"LH, G1/4"	
14056320	320/32	APMY	G/8", G3/8"LH, G1/4"	incl. rack m 1,25

#### Torch type X541

Art. Nr.	Length/dia	Gas	Connection	Note
203021310	150/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8, 1x6,3, valves
203021298	220/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8, 1x6,3, valves
203021299	320/32	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8, 1x6,3, valves
ARZ0068	320/34	APMY	G3/8", G3/8"LH, G1/4"	BV12, hose nipple 2x8, 1x6,3, valves, rack m 1,25

#### Torch type BNM

Art. Nr.	Length/dia	Gas	Connection	Note
0764582	90/28	APMY	2xG1/4", G1/4"LH	incl. rack m 0,7
0764583	90/28	APMY	2xG1/4", G1/4"LH	

Other lengths and diameters on customer request.

## Overview of Cutting Nozzle for BGR (X541)



### Cutting Nozzles A-MD Coolex – Acetylene



Nozzle with 2-piece design, outer nozzle and inner nozzle chrome plated, simple cleaning procedure, COOLEX effect. Special acetylene high speed mixing cutting nozzle.

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

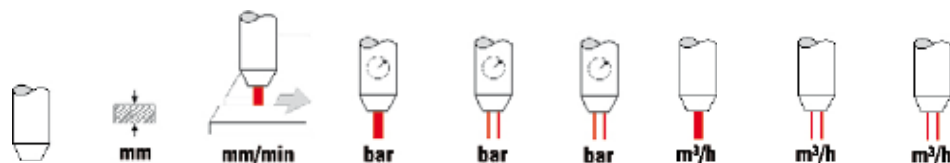
### High Speed Cutting

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

## Cutting Nozzle TRITEX – Acetylene



Modern high performance cutting oxygen channel, outer and inner nozzle chrome plated. 2-piece design, simple cleaning procedure, COOLEX-effect. Special acetylene high performance mixing cutting nozzle.



### High Performance Cutting

Art. Nr.	mm	mm/min	Cutting ox bar	Heating ox bar	Acet. bar	Cutting ox m³/h	Heating ox m³/h	Acet. m³/h
219144464	3 - 5	700 - 760	3 - 4	1	0,6	0,5 - 0,6	1	0,5
219144465	6 - 10	650 - 700	5 - 7,5	1	0,6	1,6 - 2,1	1	0,5
219144466	10 - 25	530 - 725	9 - 11	1	0,6	4,2	1	0,5
219144467	25 - 50	410 - 530	9 - 11	1	0,6	4,3 - 5,2	1	0,5
219144468	50 - 75	330 - 410	10 - 11	1,5	0,7	6,7 - 8,1	0,55 - 0,7	0,5 - 0,7
219144469	75 - 100	280 - 330	10 - 11	1,5	0,7	8,9 - 10,2	1	0,7
219 144470	100 - 150	210 - 280	9 - 10	1,5	0,7	9,5 - 11,5	0,8 - 1,3	0,7 - 1
219144471	150 - 240	130 - 210	6,5 - 7,5	2	0,8	19 - 22	1,5 - 1,8	1,2 - 1,5
219144472	240 - 300	110 - 130	6,5 - 7,5	2	0,8	28 - 32	3	2,2

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. This nozzle requires 11 bar oxygen at the torch inlet.

## Cutting Nozzles K50 PUZ and K70 PUZ – Propane, Natural Gas



Cutting nozzle complete

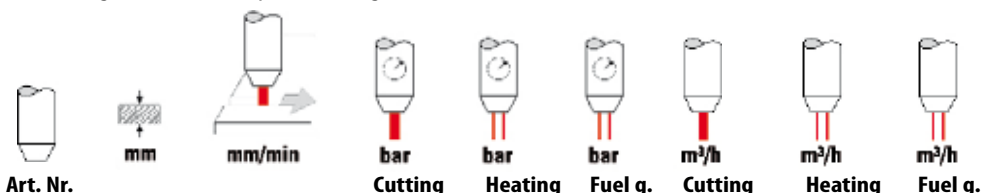


Nozzle adapter



Heating nozzle

Standard mixing cutting nozzle for application on all cutting devices. 2 - part design of inner cutting nozzle based on PUZ. Outer heating nozzle is chrome plated for longer life time.



Art. Nr.	mm	mm/min	Cutting ox bar	Heating ox bar	Fuel g. bar	Cutting ox m³/h	Heating ox m³/h	Fuel g. m³/h
14001749	3 - 10	550 - 660	2 - 3	2,5	0,3	1,3 - 1,7	1,4	0,36
14001750	10 - 25	400 - 560	3 - 4,5	3	0,3	1,7 - 2,6	1,6	0,41
14001751	25 - 40	340 - 400	4 - 5	3	0,3	2,8 - 3,4	1,6	0,41
14001753	40 - 60	300 - 340	4,5 - 5,5	3	0,3	4,6 - 5,6	1,6	0,41
14001755	60 - 100	260 - 310	5 - 6	3	0,3	8,1 - 9,5	1,6	0,41
14001761	100 - 200	180 - 260	5,5 - 6,5	3,5 - 5,5	0,4	12,6 - 14,4	1,8 - 2,6	0,49 - 0,7
14001762	200 - 300	110 - 180	6,5 - 8,5	5,5 - 7,5	0,4	23,1 - 29,1	2,6 - 3,4	0,7 - 0,92
14050765	Spare part, nozzle adapter (3 cone, 30° IC)							
14001763	Spare part, heating nozzle separate							

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

## Machine Cutting Torch JETSTREAM

### Machine Cutting Torch JETSTREAM – Injector Type



The machine cutting torch includes the same features like the shown BIR+ torche (see page 2). The nozzle seat is designed for fixing of the GCE nozzles with original flat nozzle seat: MA 133-D, MP133, JETEX and PROPEX. Jetstream is provided with COOLEX valve and the torch set includes additional equipment according to following specification.

#### Torch type JETSTREAM

Art. Nr.	Length / dia	Gas	Connection	Incl.
203021311	220/32	A	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021315	400/32	A	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021316	400/35	A	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021300	220/30	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021301	220/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021302	220/35	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021306	400/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021309	400/35	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021313	220/32	P	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021307	220/35	P	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021317	400/32	P	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021318	400/35	P	2xUNF 9/16", 1xUNF 9/16"LH	BV12 + hose nipple 3x6,3 + valves
203021303	220/30	P	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021304	220/32	P	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves
203021305	220/35	P	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3 + valves

#### Torch type BM 31 CF

Art. Nr.	Length/dia	Gas	Connection	Incl.
203021243	100/28	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3
203021245	100/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3
203021244	160/28	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3
203021246	160/32	A	G3/8", G3/8"LH, G1/4"	BV12 + hose nipple 2x8, 1x6,3

Other lengths and diameters on customer request.



## Features of Machine Cutting Torch Jetstream

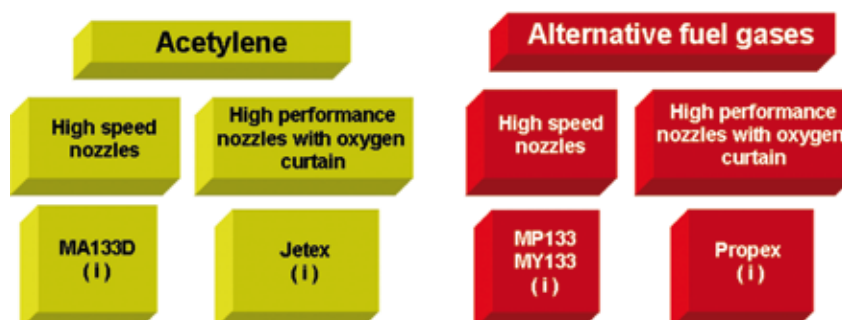
### Integrated Cool flow valve

- The JETSTREAM contains a cool flow valve which provides a small amount of oxygen during preheating the basic material. This small oxygen flow is streaming through the cutting oxygen channel to cool down the complete torch system and prevents the reverse flow of hot gases in to the cutting nozzle. The nozzle will be protected against early contamination.
- Longer nozzle life time
- Lower system temperature
- Max. 40 °C at mixing system
- Constant flow channels
- Constant gas flows

### Safety Injector

A safety injector covered in a stable brass body is the basis for a safe function. Any overheating will be transported away from the injector which protects the torch against sustained backfire.

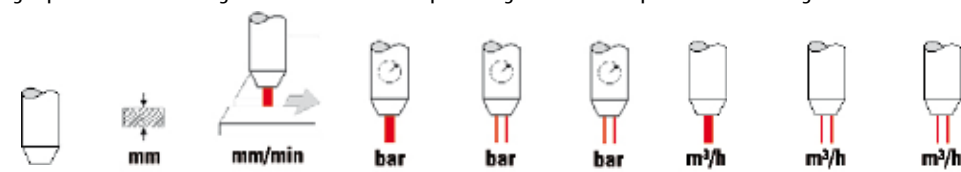
## Overview of Cutting Nozzle for JETSTREAM



## Cutting Nozzles MA133 D – Acetylene



High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle.



### High Speed Cutting

Art. Nr.	mm	mm/min	Cutting ox bar	Heating ox bar	Acet. bar	Cutting ox m <sup>3</sup> /h	Heating ox m <sup>3</sup> /h	Acet. m <sup>3</sup> /h
202150330	3 - 8	650 - 900	3 - 5	1,5	0,2 - 0,8	1,25 - 1,85	0,55	0,5
202150331	8 - 15	600 - 800	5 - 6	1,5	0,2 - 0,8	2,15 - 2,6	0,55	0,5
202150332	15 - 30	460 - 680	6 - 7	1,5	0,2 - 0,8	3,6 - 4,15	0,55	0,5
202150333	30 - 50	360 - 575	6,5 - 7,5	1,5	0,2 - 0,8	5,2 - 5,85	0,55	0,5
202150334	50 - 70	340 - 475	7,5	2,3	0,2 - 0,8	7,8 - 8	0,715	0,65
202150335	70 - 100	250 - 365	7 - 8	2,3	0,2 - 0,8	11,1 - 12,3	0,715	0,65
202150336	100 - 200	150 - 250	5,5 - 7,5	2,0 - 2,5	0,6	11,7 - 15,7	0,75 - 0,85	0,58 - 0,77
202150337	200 - 300	110 - 1 80	5,5 - 6,5	4 - 5	0,6	28,6 - 31	1,12 - 1,47	1,02 - 1,34

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

## Cutting Nozzles JETEX<sup>®</sup> – Acetylene



The high performance cutting system JETEX is designed for cutting of thin and medium dimensioned steel plates and long strips cutting. The nozzle operates with an oxygen curtain, which has the function of a shielding gas protecting oxygen stream against decontamination. The system provides a high cutting quality with smooth cut surfaces and sharp cutting top edges even achieving very high cutting speeds. Its unique design offers a wide cutting range while cutting different plate thickness by reducing the number of nozzle exchanges. JETEX is supplied only as twin individually packed in a plastic tube. Please note: JETEX needs training and education of the operators.



### High Performance Cutting

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

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet) and by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. Nozzle requires 10 bar oxygen pressure at the torch inlet.

## Cutting Nozzles MP133 – Propane, Natural Gas

High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle.



Art. Nr.	mm	mm/min	Cutting ox bar	Heating ox bar	Fuel g. bar	Cutting ox m <sup>3</sup> /h	Heating ox m <sup>3</sup> /h	Fuel g. m <sup>3</sup> /h
202150320	3 - 10	600 - 750	4 - 5	2	0,1 - 0,8	2	2	0
202150321	10 - 15	540 - 635	5 - 6	2	0,1 - 0,8	2,32 - 2,6	2	0
202150322	15 - 30	440 - 610	6 - 7	2	0,1 - 0,8	3,6 - 4	1,6 - 1,75	0,40 - 0,44
202150323	30 - 50	380 - 510	6,5 - 7,5	2	0,1 - 0,8	4,85 - 5,7	2	0
202150324	50 - 70	320 - 460	7 - 7,5	2	0,1 - 0,8	7,4 - 7,75	2	1
202150325	70 - 100	280 - 400	7 - 8	2	0,1 - 0,8	11,1 - 12,3	2	1
202150326	100 - 200	150 - 250	5,5 - 7,5	2	0,3 - 0,8	11,7 - 15,7	2	1
202150327	200 - 300	110 - 180	5,5 - 6,5	3	0,3 - 0,8	26,8 - 31	3	1

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### High Speed Cutting

## Cutting Nozzles MY133 – Mixed Fuel Gases

High speed machine cutting nozzle with flat seat. 2-part design with chrome plated outer heating nozzle.



Art. Nr.	mm	mm/min	Cutting ox bar	Heating ox bar	Fuel g. bar	Cutting ox m <sup>3</sup> /h	Heating ox m <sup>3</sup> /h	Fuel g. m <sup>3</sup> /h
202150340	3 - 10	600 - 750	4 - 5	2	0,1 - 0,8	2	2	0
202150341	10 - 15	540 - 635	5 - 6	2	0,1 - 0,8	2,32 - 2,6	2	0
202150342	15 - 30	440 - 610	6 - 7	2	0,1 - 0,8	3,6 - 4	1,6 - 1,75	0,40 - 0,44
202150343	30 - 50	380 - 510	6,5 - 7,5	2	0,1 - 0,8	4,85 - 5,7	2	0
202150344	50 - 70	320 - 460	7 - 7,5	2	0,1 - 0,8	7,4 - 7,75	2	1
202150345	70 - 100	280 - 400	7 - 8	2	0,1 - 0,8	11,1 - 12,3	2	1
202150346	100 - 200	150 - 250	5,5 - 7,5	2	0,3 - 0,8	11,7 - 15,7	2	1
202150347	200 - 300	110 - 180	5,5 - 6,5	3	0,3 - 0,8	26,8 - 31	3	1

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### High Speed Cutting

## Cutting Nozzles PROPEX – Propane



The high performance cutting system PROPEX is designed for cutting of thin and medium dimensioned steel plates and long strips cutting. The nozzle operates with an oxygen curtain, which has the function of a shielding gas protecting oxygen stream against decontamination. The system provides a high cutting quality with smooth cut surfaces and sharp cutting top edges even achieving very high cutting speeds. Its unique design offers a wide cutting range while cutting different plate thickness by reducing the number of nozzle exchanges. PROPEX is supplied only as twin individually packed in a plastic tube. Please note: PROPEX needs training and education of the operators.

**High Performance Cutting**

Art. Nr.	mm	mm	mm	mm/min	Fuel gas bar	m <sup>3</sup> /h	Heating ox bar	m <sup>3</sup> /h	Cutting ox bar	m <sup>3</sup> /h
<b>202150370</b>	5	6,0	2,8	850 - 930	0,2 - 0,8	0,4	1,5	1,6	8,0	5,7
	10	6,0	2,8	760 - 840	0,2 - 0,8	0,4	1,5	1,6	8,0	5,7
	15	6,0	2,9	700 - 760	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	20	6,0	2,9	610 - 690	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	25	6,0	2,9	540 - 620	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	30	6,0	2,9	460 - 540	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
	40	6,0	2,9	360 - 410	0,2 - 0,8	0,4	1,5	1,6	10,0	7,0
<b>202150371</b>	5	6,0	3,0	850 - 930	0,2 - 0,8	0,4	1,5	1,6	8,0	9,2
	10	6,0	3,2	760 - 840	0,2 - 0,8	0,4	1,5	1,6	8,0	9,2
	15	6,0	3,2	700 - 760	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
	20	6,0	3,2	610 - 690	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
	25	6,0	3,2	550 - 630	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
	30	6,0	3,2	490 - 570	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
	40	6,0	3,2	440 - 490	0,2 - 0,8	0,4	1,5	1,6	10,0	11,1
	50	9,0	3,3	350 - 410	0,2 - 0,8	0,5	2,2	2,1	10,0	11,1
70	12,0	3,5	260 - 300	0,2 - 0,8	0,5	2,2	2,1	10,0	11,1	

Machine cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better. Nozzle requires 10 bar oxygene pressure at the torch inlet.

## Portable Cutting Machine IMP Speed

### Cutting Machine IMP-Speed – Acetylene, Propane, Natural Gas



This rugged, portable and economical machine is designed for accuracy and incorporates many great user benefits. A circle cutting attachment is part of the basic delivery package. The rugged body consists of two light alloy castings containing the transformer, electric motor and gear box. For strip, chamfer and plate edge preparation, a second torch can be fitted.

Art. Nr.	Description
14088700	IMP-Speed Acetylene
14088704	IMP-Speed Propane/ Natural gas
14088705	IMP-Speed basic
14088709	IMP-Speed Plasma

### Convenient Circle, Strip, Bevel and Plasma

#### Circle cutting

An attachment is supplied with the machine enabling circles to be cut from 75 up to 1380 mm in single torch form, and up to 1740 mm when fitted with a second torch and a longer radius bar

#### Strip Cutting

A torch can be mounted onto each side to the machine. Alternatively if narrower strips are required both torches may be positioned on the same side with the counter balance weight fitted to maintain stability

#### Bevel Cutting

IMP can carry two torches for plate edge preparation

#### Guided Cutting

The guide bars on the right hand side of the machine enable straight or predetermined curves to be cut with the machine directly on the plate surface

#### Straight cutting with track guidance

While straight cutting it is convenient to operate the machine with the specially designed 2 m long light alloy track. Sections can be added and secured by means of simple fully interlocking clip.

#### Plasma operation

- High speed drive up to 1700 mm/min
- Speed range permits low power plasma cutting

#### Easy handling

##### Lightweight

With its sturdy handle it is easy to carry (app. 9 kg) and to steer. It is well balanced due to its ingenious design and the use of light alloy materials. The heaviest part of the machine is located above the wheel drive to ensure good traction.

##### Hand steering

The castor wheel is released for hand guidance on slow curves and the machine is placed directly onto the plate

##### Easy to operate

- All machine controls within a hand span
- Unique clutch design for ease of operation
- Changing nozzles is easy by moving the machine to its end

#### Technical Data

Move:	forward and reverse
Extension:	up to 2 cutting torches
Cutting thickness:	3 – 150 mm / 0,12" – 6"
Cutting speed:	100 – 1700 mm/min
Weight:	9 kg / 20 lbs (complete with single torch and hoses)
Input hoses:	Fuel gas: G3/8" LH, hose diam. 8 mm, Oxygen: G3/8", hose diam. 8 mm
Power supply:	220 V / 110 V, 50 – 60 Hz
Power consumption:	60 W




#### Basic scale of delivery

IMP - Speed basic: Machine body, machine gas distribution manifold for one torch, torch holder, torch bar (length 342 mm), heat shield, radius pole, centrepiece of radius, connecting cable with shock-proof plug, nozzle nut spanner and instruction manual.


IMP - Speed Acetylene / Propane: Equipment of basic version with nozzle mix torch, torch hoses and high speed cutting nozzle set 3-100 mm.

IMP - Speed plasma: Equipment of basic version with prismatic clamp for plasma torch (ø 25 – 40 mm)








## Cutting Nozzles K50 PUZ, K70 PUZ – Propane, Natural gas

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

## Cutting Nozzles A-MD Coolex – Acetylene

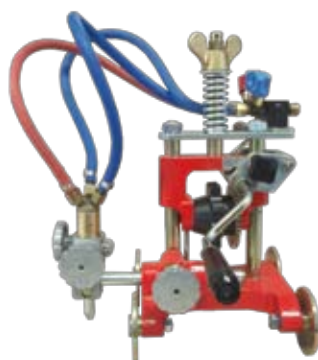
	Art. Nr.	mm	mm/min	bar	bar	bar	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h
				Cutting ox	Heating ox	Fuel g.	Cutting ox	Heating ox	Fuel g.
	14001450	3 - 5	750 - 800	2 - 3	1	0,3	0,4 - 0,55	1	0,5
	14001451	6 - 10	700 - 750	4 - 5	1	0,3	1,2 - 1,4	1	0,5
	14001452	10 - 25	500 - 650	6,5 - 7,5	1	0,3	3,2 - 3,7	1	0,5
	14001453	25 - 40	420 - 500	6,5 - 8	1	0,3	4,6 - 5,5	1	0,5
	14001454	40 - 60	360 - 420	6,5 - 8,5	1,5	0,3	5,6 - 7,1	1	0,7
	14001455	60 - 100	270 - 360	6,5 - 8	1,5	0,3	9,1 - 11	1	0,7
	14001456	100 - 150	210 - 270	6,5 - 7	1,5	0,4	12,2 - 12,9	1	0,7

## IMP Speed Accessories

	<b>Art. Nr.</b>	<b>Description</b>
	2221014P	Machine cutting torch, nozzle mix
	<b>Art. Nr.</b>	<b>Description</b>
	14088708	Prisma torch clamp for plasma torch Ø 25 – 40
	<b>Art. Nr.</b>	<b>Description</b>
	14088703	Aluminium track, incl. clamp spring, length 2 m
	<b>Art. Nr.</b>	<b>Description</b>
	43470001P	Steel clamp spring for track
	<b>Art. Nr.</b>	<b>Description</b>
	14088701	Extension set, for second torch without nozzles
	<b>Art. Nr.</b>	<b>Description</b>
	14088711P	Cutting oxygen hose
	14088710P	Heating oxygen hose
	14088712P	Propane hose
	14088713P	Acetylene hose
	<b>Art. Nr.</b>	<b>Description</b>
	43170001P	Torch holder Other spare parts on request!

## Portable Pipe Cutting Machine PCM

### Pipe Cutting Machine PCM – Acetylene / Propane



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

Art. Nr.	Description
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60201	Pipe Cutting Machine PCM
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Technical data	
----------------	--

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

### Cutting Nozzles ANME – Acetylene



Art. Nr.	mm	inch	Oxygen (bar)	Fuel gas (bar)	Oxygen (m³/h)	Fuel gas (m³/h)
0768670	3 - 6	1/32	2,5 - 3,5	0,3	1,25 - 1,65	0,3
0768635	5 - 12	3/64	3,0 - 4,0	0,3	2,12 - 3,2	0,4
0768599	10 - 75	1/16	3,5 - 4,5	0,3	3,2 - 4,45	0,45
0768636	70 - 100	5/64	4,5 - 5,5	0,5	8,4 - 9,8	0,6

Cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### Cutting Nozzles PNME – Propane



Art. Nr.	mm	inch	Oxygen (bar)	Fuel gas (bar)	Oxygen (m³/h)	Fuel gas (m³/h)
0769704	3 - 6	1/32	2	0,3	2,1	0,3
0769705	5 - 12	3/64	3	0,3	3,2	0,4
0769706	10 - 75	1/16	3	0,3	5,2	0,6
0769707	70 - 100	5/64	4	0	13,6	1

Cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### PCM Accessories

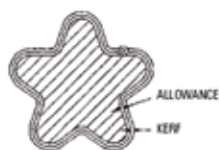
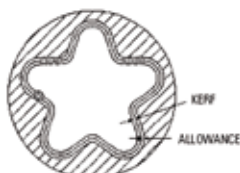


Art. Nr.	Description
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0764583	Nozzle mix cutting torch with rack
889400	Drive chain 585 mm (20 detachable chain links)

## Portable Shape Cutting Machine SCM

### Shape Cutting Machine SCM – Acetylene / Propane, Natural Gas



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

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

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

Art. Nr.	Description
60050	Cutting Machine

#### Technical Data

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

### Cutting Nozzles ANME – Acetylene



Art. Nr.	mm	inch	Oxygen (bar)	Fuel gas (bar)	Oxygen (m <sup>3</sup> /h)	Fuel gas (m <sup>3</sup> /h)
0768670	3 - 6	1/32	2,5 - 3,5	0,3	1,25 - 1,65	0,3
0768635	5 - 12	3/64	3,0 - 4,0	0,3	2,12 - 3,2	0,4
0768599	10 - 75	1/16	3,5 - 4,5	0,3	3,2 - 4,45	0,45
0768636	70 - 100	5/64	4,5 - 5,5	0,5	8,4 - 9,8	0,6

Cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### Cutting Nozzles PNME – Propane, Natural Gas



Art. Nr.	mm	inch	Oxygen (bar)	Fuel gas (bar)	Oxygen (m <sup>3</sup> /h)	Fuel gas (m <sup>3</sup> /h)
0769704	3 - 6	1/32	2	0,3	2,1	0,3
0769705	5 - 12	3/64	3	0,3	3,2	0,4
0769706	10 - 75	1/16	3	0,3	5,2	0,6
0769707	70 - 100	5/64	4	0	13,6	1

Cutting nozzle for cuts of quality level 1 according to EN ISO 9013. It is possible to reach maximal cutting speed by set-up cutting parameters above (measured at the torch inlet), cutting of straight cuts, by using of clean metal sheet surface, quality cutting machine, undamaged cutting nozzle and oxygen with purity 99,5% or better.

### SCM Accessories



Art. Nr.	Description
548904046841	Nozzle mix cutting torch with rack and valves
548304684924	Hose set

## Machine Cutting Accessories

### Flashback Arrestors for Machine Cutting Torches EN 730-1



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

### Non Return Valve BV 12 M



This valve can be connected to the inlets of machine cutting torches BIR, BGR and Jetstream.

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

### Pressure Control Gauge



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

Art. Nr.	Pressure indication (bar)	Connection (EN 560)
14008259	0 - 10	G1/4"
14008569	0 - 10	G3/8"
14008567	0 - 2,5	G3/8" LH
ARV0027	0 - 16	G3/8"
9441850	Nozzle pressure control gauge	BIR, BGR

### Cleaning Accessories



Art. Nr.	Description
14008157	Brass cleaning brush
14056010	Conical cleaning needle for cutting oxygen channels
548814071191	Cleaning needle set
218190051	Chemical nozzle cleaner

### Flame Lighter



Art. Nr.	Description
54800003001B	Flame lighter

### Leak Detection Spray



Art. Nr.	Description
WP22028	Gas leak detector 400 ml

### Adjustment valves



Art. Nr.	Application	Connection (EN 560)
14056015	Cutting oxygen	G 3/8"
14056016	Heating oxygen	G 1/4"
14056017	Fuel gas	G3/8"LH

## Spanner



Art. Nr.	Description
163811162890	Multifunction spanner

## Hose Nipples



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

## Sleeve Nuts



Art. Nr.	Connection [EN 560]
548200018934	G 3/8"
548200018932	G 3/8" LH
4599400	G 1/4"

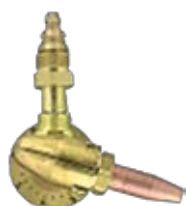
## Strip Cutting Device



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

Art. Nr.	Torch	Gas
1405509	for BIR+	with acetylene, propane, natural gas
14056012	for BGR/X541	with all fuel gases
202235504	for Jetstream	with acetylene, propane, natural gas

## Bevel Cutting Device



Art. Nr.	Torch
219200073	for BGR/X541
202135166	for Jetstream/BM 31 CF
0764659	for BIR+

## Nozzle Nut



Art. Nr.	Torch
201032270	for Jetstream/BM 31 CF
3551506	for BGR/X541

## Conversion Kits For BIR+

These kits can be used for machine conversions to BIR+ torches. Each set includes components to ensure quick conversion and restart of manufacturing process. A certain amount of nozzles, valves and safety devices in the set guarantees sufficient long term cutting work, until ordering the next wear parts.

Art. Nr.	Type	Gas	Shaft-Ø	Nozzle type
14055171	MA	Acetylene	32 mm	A-SD
14076825	MA HD	Acetylene	32 mm	A-HD
14055172	MP	Propane/nat. gas/mixed fuel gas	32 mm	P-SD
14055175	MP HD	Propane/mixed fuel gas	32 mm	PY-HD
14055173	ZA	Acetylene	34 mm	A-SD
14055176	ZA HD	Acetylene	34 mm	A-HD
14055174	ZP	Propane/nat. gas/mixed fuel gas	34 mm	P-SD
14055177	ZP HD	Propane/mixed fuel gas	34 mm	PY-HD

MA and MP type kits are suitable for conversion of machines with torch clamp diameter 32 mm, except ESAB cutting machines. ZA and ZP type kits are suitable for use with torch clamp diameter 34 mm with and without rack SA and SP could be used together with burner clamps diameter 32 mm including rack. Other kits on request.

## Adjustment Recommendation for Perfect Machine Cutting



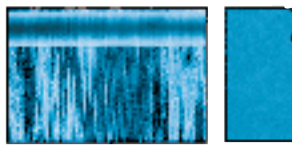
### Narrowing of kerf (divergent)

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



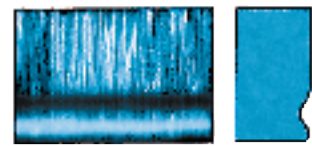
### Narrowing of kerf (convergent)

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



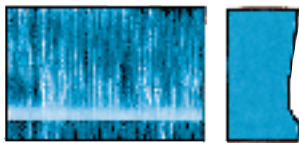
### Concave cut surface beneath top edge

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



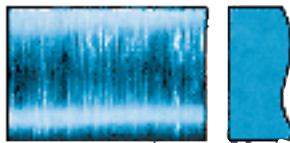
### Step at bottom edge

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



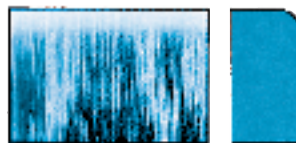
### Concave cut surface profile

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



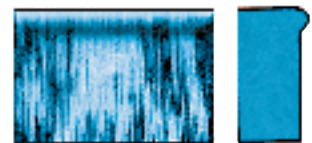
### Irregular cut surface profile

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



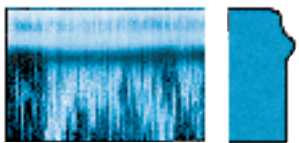
### Edge melting on

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



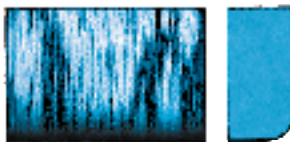
### String of solidified droplets

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



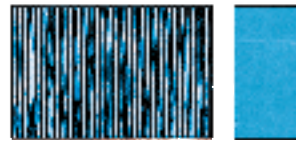
### Melted down top edge with adherent slag

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



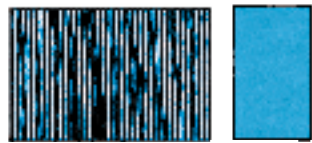
### Lower edge rounded

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



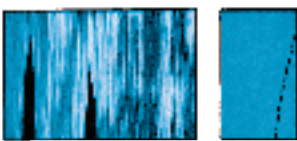
### Excessive cut drag line depth

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



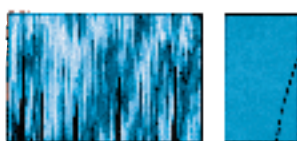
### Irregular depth of cut line

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



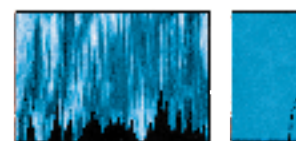
### Single gouges

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



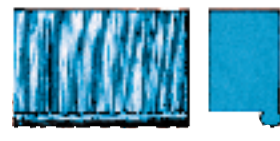
### Grouped gouge areas

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



### Grouped gouges in the bottom half of the cut

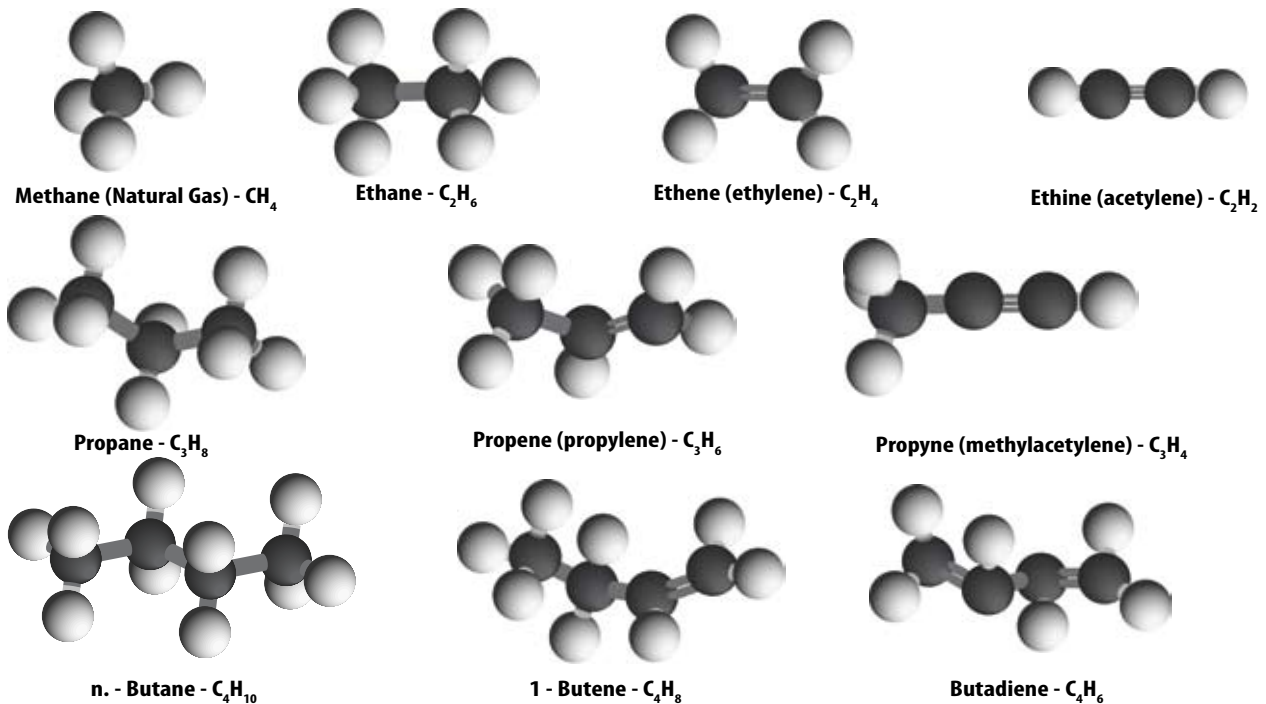
- Forward speed of torch too slow
- Dirty and / or damaged nozzle



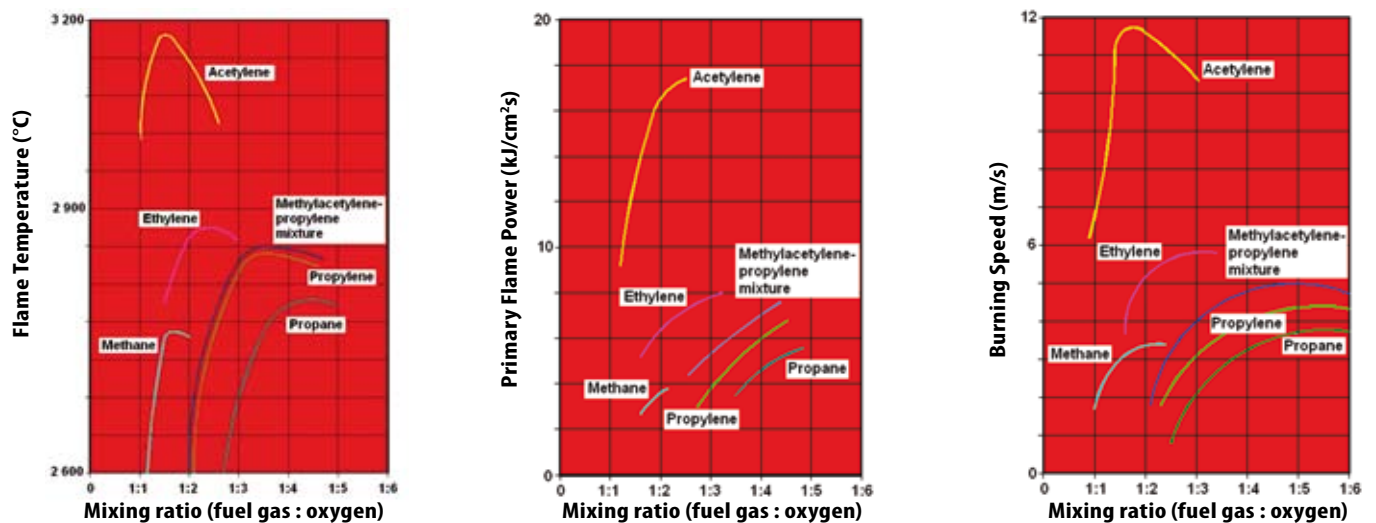
### Firmly adherent slag line at bottom edge

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

## Fuel Gases



## Fuel Gases Properties



Fuel gas type			Heating power		Mixing ratio			Flame temperature ( $^{\circ}\text{C}$ )			Density	
					V oxygen/V fuel gas						1 bar, $15^{\circ}\text{C}$	liquid form
			$\text{MJ}/\text{m}^3$	$\text{MJ}/\text{kg}$	N	M	S	N	M	S	$\text{kg}/\text{m}^3$	$\text{kg}/\text{l}$
Hydrogen	$\text{H}_2$	H	10,758	119,533	0,36	0,42	0,5	2 835	2 856	2 840	0,09	0,07
Methane	$\text{CH}_4$	M	31,814	44,186	1,6	1,8	2	2 770	2 786	2 778	0,72	0,42
Acetylene	$\text{C}_2\text{H}_2$	A	56,93	48,678	1,1	1,5	2,5	3 106	3 160	3 066	1,17	0,62
Ethylene	$\text{C}_2\text{H}_4$	F	55,674	47,6	1,8	2,4	3	2 902	2 924	2 902	1,17	0,57
Propylene	$\text{C}_3\text{H}_6$	Y	89,999	46,153	2,8	3,5	4	2 872	2 896	2 878	1,95	0,58
Propane	$\text{C}_3\text{H}_8$	P	93,557	46,315	3,75	4,3	5	2 810	2 828	2 820	2,02	0,53

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

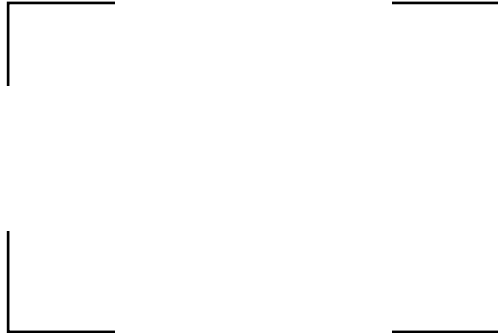


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## CUTTING & WELDING



- Regulators, safety devices, hose
- Blowpipes, nozzles, welding sets
- MIG/TIG torches, inverters
- Personal protective equipment
- Filler materials and accessories

## PROCESS APPLICATIONS



- High pressure cylinder valves
- Industrial gas supply systems
- Machine cutting equipment

## MEDICAL



- Oxygen therapy equipment
- Medical gas supply systems
- Emergency equipment and systems
- Resuscitation equipment

## HIGH PURITY



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