
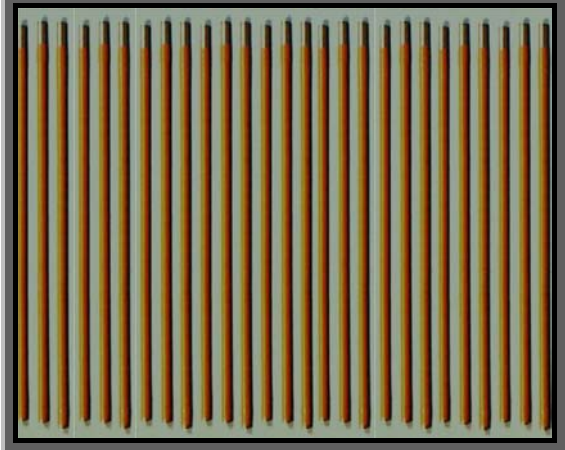




PVL International B.V. Reusel Holland

PVL CUTTING TORCH

<u>PVL CUTTING TORCH</u>	<u>OXY/THERMIC CUTTING TORCH</u>
	
<p align="center">REQUIRED MATERIAL</p> <p>PVL Torch Hoses 100 metre Gas regulator Oxygen O₂ per m³ Gas mixture per 79ltr Underwater igniter</p>	<p align="center">REQUIRED MATERIAL</p> <p>Oxy/Thermic torch Hoses & 50mm cable 100 metre Earth cable 100 metre Welding generator Oxygen O₂ per m³ Electrodes per box Gas regulator Cut off switch (Knife switch)</p>
Transportation Weight and Dimensions	
<p>Torch, hoses, regulator & spares.</p> <p>L x B x H = 58 x 78 x 40 Total Weight = 65kg</p> <p>MAP Gas bottle</p> <p>L x B x H = 30 x 30 x 127 Bottle weight = 32kg Gas weight = 34kg</p>	<p>Torch, cables, switch, regulator & spares.</p> <p>L x B x H = 120 x 100 x 75 Total Weight = 300kg</p> <p>Thermic electrodes per box</p> <p>L x B x H = 50 x 10 x 10 Total Weight = 12kg</p> <p>DC generator (Powcon)</p> <p>L x B x H = 84 x 51 x 50 Total Weight = 100kg</p>
Consumption Proportions	
<p>1 Bottle of Gas to 10 bottles of Oxygen</p>	<p>10 Packs of Electrodes to 10 bottles of Oxygen</p>



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Divers involved in the PVL cutting tests.

Personnel and Locations: In the Roermond harbour.

Diver 1
Diver 2.

Observations & Results:

Diver 1

- Easy to ignite
- Quick cut
- Easy operation
- Easy adjustment
- Little material required (no generator, earth cable etc.)
- Robust cutting torch with no/minimal maintenance

Diver 2.

- Simple to start
- Simple for me to burn
- Ideal when used for what it is designed

In the pool at Weert.

Diver 3
Diver 4
Diver 5
Diver 6
Diver 7
Diver 8
Diver 9

Diver 3.

- Easy to start
- Only bracings require a little practice but are also possible
- Not difficult to adjust
- Only 2 valves for the diver to control
 - 1 for on/off
 - 1 for the cutting Oxygen
- The flame from the torch can be seen through the cut as you move along the plate



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Diver 4.

- Easy to ignite
- Clear view of your cut through the material
- You are not blinded by the flame so full concentration can be given to the burning

Diver 5.

- Easy and quick to ignite
- Little material required (Gas, Oxygen, hose, regulator, torch)
- Head is short so always close to material and small sections are always possible because there is no electrode inserted
- No current needed to strike up (electricity)
- In water ignition
- Material does not need to be stainless (rust-proof)
- Easy to adjust with the regulator on the surface
- Easy operation underwater (valve fully opened or closed)
- Cut is clean and quick
- With little experience it is practical to use
- Minimal back up maintenance needed because of its simplicity
- Noise was louder in the tank than in the harbour
- Be aware “blowback” of trapped excess gas when cutting in enclosed areas
- Straight cut

Diver 6.

- Ideal use for what it was designed (fast production)
- No excuses with the electrode torch (collets, washers, leaks etc.)
- No problems with rusting
- Simple to adjust (and to regulate)
- Little noisier
- No problems with blinding in clear water
- No electrodes
- Little maintenance
- Everyone is able to burn with the PVL
- Less problems with uncut material (bridges)
- Nearly all is possible with the PVL cutting torch



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Diver 7.

- Easy to ignite
- Simple to cut
- 10cm thick material, no problem
- Everyone can use the PVL cutting torch
- No electrodes to change
- Straight cut

Diver 8

- Easy and quick to ignite
- Simple to burn
- Everyone can use the PVL cutting torch
- No problems with blinding in clear water
- Cut is clean and quick

Diver 9.

- Easy to start the PVL cutting torch
- No problems with electrodes
- Not difficult to adjust
- Easy to ignite



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CUTTING TORCH TEST

The test was conducted by cutting through the middle of a 25mm thick and 1.2m long steel plate. The plate was held in a vice and cut horizontally. The time recorded is the actual time taken to cut the steel plate completely into two sections.

	PVL Cutting Torch		Oxy/Thermic Cutting Torch
Diver	Diver 1		Diver 1
Location	Weert		Weert
Material	Steel strip 160x1200x25mm		Steel strip 160x1200x25mm
Initial Oxygen Pressure	180 bar	120 bar	195 bar
Final Oxygen Pressure	160 bar	100 bar	50 bar
Cylinder Capacity	40 ltr	47 ltr	50 ltr
Total O ₂ Consumption	1740 ltr		7250 ltr
Initial Gas Pressure			Not applic
Final Gas Pressure			Not applic
Consumed electrodes	Not applic		19
Time Began	11:56		09:27
Time Finished	12:02		10:08
Total Time	6 min 17 secs		41 mins
Visibility	35 cm		35 cm
Total Cost of Cut	Euro 11.00		Euro 86.00



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CONCLUSION

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none">+ Lightweight & compact for transport+ Low consumable costs+ Easy to ignite+ Simple operation+ Quick cutting in the right conditions+ Good vision of the cut through the material+ No risk from temporary blindness (arceye)+ No power supply required (electricity)+ Equipment does not need to be rust-proof+ Clean, straight cut+ Minimal maintenance & spares+ No excuses relating to torch problems+ Easy to use for unskilled personnel+ Less chance of leaving uncut material (bridges)+ Ability to cut thick material	<ul style="list-style-type: none">- Experience and practice is needed to cut some types of bracings- Nearly everything is possible to cut- Louder than the Oxy/Thermic torch- Gas should not be too cold- Gas bottles should be kept in a warm environment