

COMET Multi Purpose 3 Blowpipe



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Operating Instructions

Manual Part No: 312911-04-012



Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing this product.

While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use.

Comet Multi Purpose Blowpipe. Instruction Manual Number 312911-04-012 for:

Comet Multi Purpose Blowpipe. (90° Head) Comet Multi Purpose Blowpipe. (Straight Head) Part Number – 304141 Part Number – 304143

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Record the following information for Warranty purposes:

Where Purchased:

Purchase Date:

SPECIAL PROCESS NOZZLES

Oxygen and Acetylene - Type 41

	Part No	Size	Fuel Gas Pressure	Fuel Gas Flow	Oxygen Gas Pressure	Total Oxygen Gas Flow
			kPa	l/min	kPa	I/min
Gouging	306035	32GB	100	15	500	61
	306036	48GB	100	18	600	85
	306037	64GB	100	20	650	112
	306038	32GS	100	15	500	61
Sheet Metal	306067	6SM	100	1.5	200	9
Heating	306068	10x12HT	100	22	350	23
Rivet Cutting	306076	15RC	100	10	400	80
Deep Gouging	306077	60DG	100	16	300	260

Oxygen and LP Gas/Natural Gas - Type 44

	Part No	Size	Fuel Gas Pressure kPa	Fuel Gas Flow I/min	Oxygen Gas Pressure kPa	Total Oxygen Gas Flow I/min
Gouging	306054	32GB	100	12	500	94
	306055	48GB	100	13	600	120
	306056	64GB	100	15	650	150
	306033	32GS	100	12	500	94
100-125	306034	20x9HT 40mi/HR	100	12	500	48
225-300	306071	1561FW	100	12	600	200

NOTES:

Cutting Nozzles can operate over a range of gas flows (hence plate thicknesses). The values indicated are typical operating conditions and can be increased or decreased to suit particular applications.

SERVICE AND REPAIR

Under no circumstances, should you attempt to service or repair the product. Service and repairs are to be carried out by trained personnel only, so as to ensure that the product is returned to you in a safe working order.

OPERATING CONDITIONS

-Nozzle Identification

Every CIGWELD nozzle is stamped for easy identification. The stamping indicates the manufacturer (CIGWELD), the type of nozzle, the size of the nozzle and process for which the nozzle is to be used (where applicable).

- Nozzle Type

"Type 40" nozzles are tapered 2 seat nozzles which fit all recent models of CIGWELD manufactured cutting attachments and cutting blowpipes.

"Type 41" nozzles are for use with acetylene: i.e. "1 = ACETYLENE"

"Type 44" nozzles are for use with LP Gas (or Natural Gas): i.e. "4 = LP Gas"

- Nozzle Sizes

The size of nozzle is based on the diameter and/or the number of holes in the nozzle.

Example 1:

A Type 41 Size 12 nozzle is a 2 seat cutting nozzle for use with acetylene which has a 1.2mm diameter cutting oxygen orifice

. i.e. 10 x 1.2mm = 12

Example 2:

A Type 44 Size 32 nozzle, is a 2 seat cutting nozzle for use with LP Gas (or Natural Gas) which has a 3.2mm diameter cutting oxygen orifice. i.e. 10 x 3.2mm = 32

- Special Process Nozzles

Special process nozzles are identified by two letters after the size of the nozzle. Listed below are the special processes and their corresponding abbreviations

- DG = Deep Gouging
- DS = Deseaming
- FW = Flame Washing
- GB = Bent Gouging
- GS = Straight Gouging
- HS = High Speed Cutting
- HT = Heating Tip
- RC = Rivet Cutting
- SM = Sheet Metal Cutting

CUTTING NOZZLES

Oxygen and Acetylene - Type 41

Plate Thickness	Part No	Size	Fuel Gas Pressure	Fuel Gas Flow	Oxygen Gas Pressure	Total Oxygen Gas Flow
mm			kPa	l/min	kPa	I/min
1-6	306046	6	100	2	200	11
6-10	306047	8	100	3.5	200	20
12-20	306048	12	100	4	200	38
25-75	306049	15	100	7	350	75
100-125	306050	20	100	9	400	134
150-200	306051	24	100	12.5	500	232
225-300	306052	32	100	20	600	420
300-400	306053	48	100	45	650	945

Oxygen and LP Gas/Natural Gas - Type 44

Dists Thislesses	Davit Ma	Cine	Eval Can Deserves	Fuel Cas Flaw	Owners Cas Deserves	Tatal Owners Can Flam
Plate Thickness	Part NO	Size	Fuel Gas Pressure	Fuel Gas Flow	oxygen Gas Pressure	Total Oxygen Gas Flow
mm			kPa	I/min	kPa	l/min
3-6	306025	6	100	2	200	17
6-12	306026	8	100	3.5	200	30
12-20	306028	12	100	4.4	250	58
25-75	306029	15	100	5.5	400	99
100-125	306030	20	100	6.5	400	171
150-200	306031	24	100	9	500	256
225-300	306032	32	100	14	600	456

INTRODUCTION

COMET MULTI PURPOSE blowpipes are designed for cutting, flame washing, rivet cutting, gouging and heating, and are not to be used for any other purpose.

PRODUCT

The two models of CIGWELD blowpipes covered by this manual are as follows:

Part No.	Description	Gases
304141	COMET MULTI PURPOSE	Oxy and Acetylene
	Cutting Blowpipe (90° Head)	Oxygen and LP Gas/Natural Gas
304143	COMET MULTI PURPOSE	Oxy and Acetylene
	Cutting Blowpipe (Straight Head)	Oxygen and LP Gas/Natural Gas

PRODUCT CONTENTS

Each blowpipe is supplied in a carton with a set of operating instructions.

The blowpipe is supplied complete, including the nozzle retaining nut.

Ensure that the part number on the packaging lines up with the part number of the blowpipe required. **Note:** If packaging seal is broken when purchased, please check contents before use.

PRODUCT SPECIFICATION

Part No.	Gases	Hose Co	nnection	Cutting Nozzle	Capacity
		Oxygen	Fuel	Туре	
304141	Oxy and Acetylene	5/8"-18 UNF RH	5/8"-18 UNF LH	Type 41	300 mm
	Oxygen and LP Gas/			Type 44	
	Natural Gas (10 kPa or more)				
304143	Oxy and Acetylene	5/8"-18 UNF RH	5/8"-18 UNF LH	Type 41	300 mm
	Oxygen and LP Gas/			Type 44	
	Natural Gas (10 kPa or more)				

CHANGING FUEL GAS

If it is found necessary to change the type of fuel gas used, this can be done by making the following changes.

- 1. Changing the fuel hose, to suit the fuel gas to be used.
- 2. Changing the cutting, heating or gouging nozzle to suit the fuel gas to be used.
- 3. Changing the fuel regulator, to suit the fuel gas to be used.

SAFETY HINTS AND WARNINGS

- Always use the blowpipe in accordance with the correct operating instructions and procedures so as to ensure safe, trouble free operation. Use protective clothing and goggles and make sure sparks, slag etc from the cutting operation are disposed of safely.
- Ensure that the blowpipe and all parts of the equipment carrying the fuel gas and oxygen are checked periodically for gas leaks and good performance. Use only soapy water or approved solutions. NEVER a Flame.
- Use the blowpipe only with the fuel gas for which it was designed. Operation with the wrong fuel gas may lead to sub-standard performance and flame instability, which could cause backfiring or flashbacks.
- Do not use the blowpipe as a "hammer", as doing so may damage the product and create potentially hazardous gas leaks.
- 5. Do not attempt to modify, service or repair the product. This should be carried out by trained personnel only.

HOSES

Hoses should be checked periodically, for any signs of damage, wear or perishing, as leaking hoses are potentially hazardous. Damaged or worn hoses should never be used.

Because of the heavy duty capacity and capability of the blowpipe, it is important where possible to keep hose lengths to a minimum. This should be done, so that flow restrictions and pressure drops, which in certain circumstances may cause backfiring or flashbacks, are minimised. Ensure the Fuel Gas supply pressure and flow is adequate for the nozzle and the flame being used.

In situations where heavy cutting or gouging is required, hose lengths should be kept to a minimum and 10mm diameter hose and hose fittings should be used.

FLASHBACK ARRESTORS

CIGWELD recommends the use of flashback arrestors for any gas welding, cutting or heating process, to guard against the possibility of backfires and flashbacks.

Contact your nearest CIGWELD Distributor for advice on the correct type of unit that should be fitted to cater for your application(s).

REGULATORS

Before connecting the blowpipe to regulators, the following should be checked:

- 1. Both regulators should be in good working order.
- 2. Both regulators should be those which have been designed for the gases the blowpipe will be operated with.
- Both regulators should be capable of supplying gas at the required flows and pressures as specified in the operating instructions.
- 4. Important: Regulators should be kept free of oil, grease or fatty substances at all times.

ASSEMBLING THE SYSTEM

A typical system will consist of the following:

- 1. An oxygen regulator which is connected to an oxygen cylinder or to a reticulated pipeline via a point valve.
- 2. An acetylene or LP Gas regulator which is connected to an acetylene or LP Gas cylinder or to a reticulated pipeline via a point valve.
- An oxygen hose complete with fittings.
- 4. An acetylene or LP Gas hose complete with fittings.
- 5. A COMET MULTI PURPOSE blowpipe.
- A cutting, heating or gouging nozzle.

ASSEMBLY PROCEDURE:

- 1. Connect oxygen and fuel regulators to cylinders or point valves.
- 2. Connect oxygen and fuel hoses to oxygen and fuel regulators.
- 3. Connect oxygen and fuel hoses to the blowpipe.
- 4. Assemble required nozzle into blowpipe.
- **NOTE:** 1 If flashback arrestors are to be used, they can be connected to the regulator or to the blowpipe before connection of the hoses is made.
 - 2 All OXYGEN connections have Right Hand threads, and are tightened CLOCKWISE
 - 3 All FUEL connections have Left Hand threads, and are tightened ANTI-CLOCKWISE
 - 4 All connections should be tightened firmly with a suitable spanner, do not over tighten.

TESTING FOR LEAKS

After assembly and before lighting up and using the blowpipe, the system needs to be tested for leaks. Assuming that the oxygen and fuel regulators are both in good working order and have been tested for leaks, the rest of the system should be tested as follows:

- 1. Firmly close the oxygen and fuel control valves on the blowpipe (refer to diagram).
- 2. Back off fully the oxygen and fuel regulator pressure adjusting knobs (i.e. ANTI-CLOCKWISE).
- 3. Open both the oxygen and fuel cylinder valves slowly (or point valves in the case of a reticulated system).
- 4. Adjust both the oxygen and fuel regulators to the required operating pressures. (Refer to "Operating Conditions")
- 5. Test for leaks using a suitable leak detection solution or soapy water at the following points.
 - i) Oxygen and fuel hose connection to regulators.
 - li) Oxygen and fuel hose connections to blowpipe
 - iii) Oxygen and fuel control valves (in the fully closed position).
 - Iv) Between the nozzle nut and the blowpipe head with gas flowing.
- 6. Close both cylinder valves
- 7. Open the close fuel control valve to release pressure from the system.
- 8. Open and close oxygen control valve to release pressure from the system.
- **IMPORTANT:** This test should be done quickly, and it is important that there are no sources of ignition present when doing so, as a certain amount of oxygen and fuel will be released to the atmosphere.

If no leaks are detected, the system is ready for use.

If any leaks are detected on the blowpipe, it should be returned to the CIGWELD Distributor from which it was purchased. If leaks are detected elsewhere in the system, then the joint should be re-tightened and re-tested, or the leaking item replaced.

LIGHTING UP PROCEDURE

After assembling the system and testing for leaks, the equipment is ready for use.

The following procedure should be followed when lighting the blowpipe.

- 1. Back off fully both the oxygen and fuel gas regulator pressure adjusting knobs (i.e. ANTI-CLOCKWISE).
- Open both the oxygen and fuel cylinder valves slowly (point valves in the case of a reticulated system). This is to be done, so as to minimise the possibility of damage occurring to the regulators.
- With the fuel control valve on the blowpipe open at least 2 turns, screw the pressure adjusting knob of the fuel gas
 regulator in (i.e. CLOCKWISE) until the desired working pressure is obtained. (Refer to "Operating Conditions").
- 4. Close the fuel control valve fully.
- With the oxygen control value on the blowpipe opened at least 2 turns, and the cutting oxygen lever fully
 depressed, screw the pressure adjusting knob of the oxygen regulator in (i.e. CLOCKWISE) until the desired
 working pressure is obtained. (Refer to "Operating Conditions").
- NOTE: If using a heating nozzle, adjust the oxygen pressure as above without depressing the cutting oxygen lever.
- 6. Release the cutting oxygen lever and close the oxygen valve fully.
- NOTE: When carrying out steps 3 to 5, allow a small amount of gas to escape. This will allow purging of the hoses and blowpipes.
- IMPORTANT: When purging, ensure that the fuel valve is fully closed before opening the oxygen valve, and the oxygen valve is closed before opening the fuel valve.
- 7. The system is now ready for lighting up.
- Open the FUEL valve so a small amount of gas flows for a few seconds, then light using a flint or piezo lighter. DO NOT USE MATCHES OR CIGARETTE LIGHTERS.
- 9. Adjust the fuel valve until the flame just ceases to smoke.
- 10. Open the oxygen valve until a neutral flame is obtained. A NEUTRAL flame is when the preheat flames on the nozzle become sharp, well defined white cones with a slight acetylene feather.
- 11. Depress the cutting oxygen lever fully and re-adjust the oxygen valve to again obtain a neutral flame.
- 12. The blowpipe is now ready for heating, cutting or gouging.
- NOTE: If the preheat flame needs to be increased or decreased in intensity, the oxygen and fuel valves can be re-adjusted to obtain the required intensity.

CLOSING DOWN PROCEDURE

1. Close FUEL control valve fully

THEN

- 2. Close OXYGEN control valve fully. (Do not do in the reverse order).
- 3. Turn off the oxygen and fuel cylinder valves fully (or point valves in the case of a reticulated system).
- 4. Open and close both the oxygen and fuel control valves (ONE at a time), to release pressure fully from the blowpipe, hoses and regulators. This is done in this way, so that reverse flow of either Gas does not occur.