

# **TWIN-O-VAC SUCTION/THERAPY UNIT**

## **Instructions for use**



521512-06-317

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## **1. INTRODUCTION**

These instructions are intended to provide users with information on the features, use and care of a Twin-O-Vac Suction/Therapy Unit.

The instructions should be read carefully by every intended user of a Twin-O-Vac in any of its applications before attempting to use it to ensure that they are fully conversant with all the information on the features, use and care of the Twin-O-Vac.



### ***Warning***

**Read and understand the entire Instructions for Use before operating this medical device. Keep them always with the device. Failure to do so may cause clinical damage to a patient or damage to the device.**

## 2. INTENDED USES

The intended purpose of the Twin-O-Vac is to provide suction by venturi action for applications such as routine airway aspiration or airway maintenance. Optional auxiliary outlets of regulated medical oxygen for delivery to devices in applications like Oxygen and Respiratory therapy.

It should only be supplied from pressure regulated medical gas systems. It should be used only in accordance with clinical or medical advice and by persons instructed and familiar with basic medical gas handling. Details of the performance of each Twin-O-Vac model is given in Section 10 Specifications.

## 3. GENERAL DESCRIPTION

The Twin-O-Vac is a venturi actuated suction unit which features two self sealing oxygen supply sources to facilitate multiple therapy applications.

The Twin-O-Vac may be connected directly to an oxygen pipeline or a cylinder regulator with a pre-set delivery pressure. Flowmeters and other accessories should be ordered separately.

A vacuum gauge fitted to the head of the Twin-O-Vac indicates the vacuum generated by the unit. Two basic models are available, one with a high suction capability up to approximately -400 mmHg (-53 kPa) and the other with a lower suction performance pre-set to provide a maximum of -200 mmHg (-26 kPa).

## 3.1 Principle of Operation

**Suction** - The oxygen source gas is controlled by a needle valve which permits adjustable flows to be directed to a venturi. Flow through the venturi generates a negative pressure in the jar which is transferred via suction tubing to a catheter or handpiece.

A bacteria filter is fitted in the Twin-O-Vac head and all entrained air is discharged via this filter.

**Oxygen Outlet** - The source gas is supplied to two self sealing outlet valves which are opened automatically by the attachment of therapy equipment.

Oxygen flows are not controlled on the Twin-O-Vac itself but are instead controlled via the added therapy equipment such as a flowmeter.

Each service is independent of the other, therefore, one or two oxygen applications can be carried out in addition to one suction application.

#### 4. PARTS IDENTIFICATION

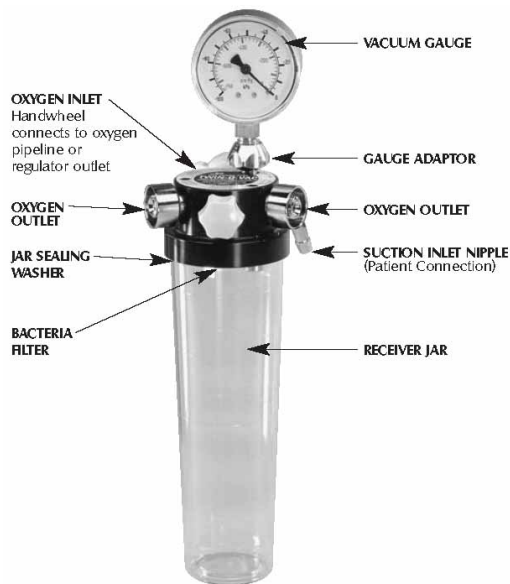


Figure 1

#### 5. SAFETY PRECAUTIONS



##### **Warning**

The Twin-O-Vac should only be used if all of its parts are in good condition.

When using the Twin-O-Vac and accessory equipment, ensure:

- No smoking, naked flames or sources of ignition nearby.
- Use no oil or greases.
- Open cylinder valve slowly and fully.
- Turn off cylinder valve when not in use.
- Keep cylinders cool.
- Do not dump or drop cylinders.
- Remove all inlet and outlet thread protective caps before use.

Do not block the suction venturi outlet located at the rear of the Twin-O-Vac. If the outlet is blocked a positive pressure could be delivered to the patient.

Do not allow liquid in the Twin-O-Vac jar to fill past the 400 ml level.

Always empty the Twin-O-Vac jar before removing the unit from the oxygen source.

If the bacteria filter becomes wet from the liquids in the jar the available suction pressure will be seriously restricted.

Always fit a new bacteria filter to the Twin-O-Vac after use with each patient.

## **6. EQUIPMENT USE**

### **6.1 Applications**

#### **Emergency:**

- Resuscitation carts
- Portable Resuscitation kits
- In the event of a power failure, as a standby suction unit.

#### **Ward:**

- Routine airway aspiration.

#### **Paediatrics/Neonatal Ward:**

- The adjustable suction control, in conjunction with the suction gauge makes the Twin-O-Vac ideally suited to infant applications.(Use low suction unit for this application).

### **6.2 Items Supplied with the Twin-O-Vac**

- Millipore Filter
- Receiver Jar
- Adaptor for Vacuum Gauge
- Vacuum Gauge
- Operating Instruction Manual

### **6.3 Installation of Vacuum Gauge**

Check that the gauge adaptor rotates freely and that the o-ring is seated in its groove inside the base of the adaptor. Insert the vacuum gauge into the adaptor, holding the gauge so that the face points to the front of the Twin-O-Vac or the best position for viewing. Tighten the adaptor onto the gauge by turning counterclockwise.

**NOTE:** Use only finger pressure to tighten the adaptor onto the gauge as the o-ring will seal against the gauge inlet.

Do not use tools to tighten.

To change the angle of the gauge at any time, loosen the adaptor, turn the gauge and re-tighten the adaptor.

### **6.4 Connecting Twin-O-Vac to Oxygen Supply**

Ensure that the suction control knob is turned off fully clockwise and connect the handwheel to an oxygen pipeline or fixed pressure regulator. (Turn handwheel clockwise).

Tighten the handwheel firmly, but do not use excessive force or any tools because the o-ring will form an effective seal.

## 6.5 Suction Check

If connected to a cylinder regulator, ensure that the cylinder valve is turned on and that the regulator gauge indicates the contents. Block the end of the metal suction inlet nipple, and slowly open the suction control knob fully counter clockwise. Observe that suction pressure builds up gradually and that the gauge pointer does not stick at any position on the dial. Check that adequate maximum suction is generated when the control knob is fully open. (See specifications, Section 10.0). If the suction reading is low, recheck that the jar is tight, that the jar and washer are in good condition and that the gauge connection is tight.

## 6.6 Suction Operation

Turn off the suction control clockwise and check that there is no flow at this setting. (Listen for the hiss of escaping oxygen at the venturi outlet). If oxygen continues to flow contact your local service centre. Attach the appropriate suction tubing and catheter or handpiece to the suction inlet nipple. Adjust the suction control knob counter clockwise, restrict the suction tubing by hand, and select the desired suction flow. The vacuum gauge will indicate the suction level developed by the Twin-O-Vac.

## 6.7 Oxygen Administration

The Twin-O-Vac provides dual oxygen supply facilities from a single oxygen pipeline outlet or fixed pressure cylinder regulator.

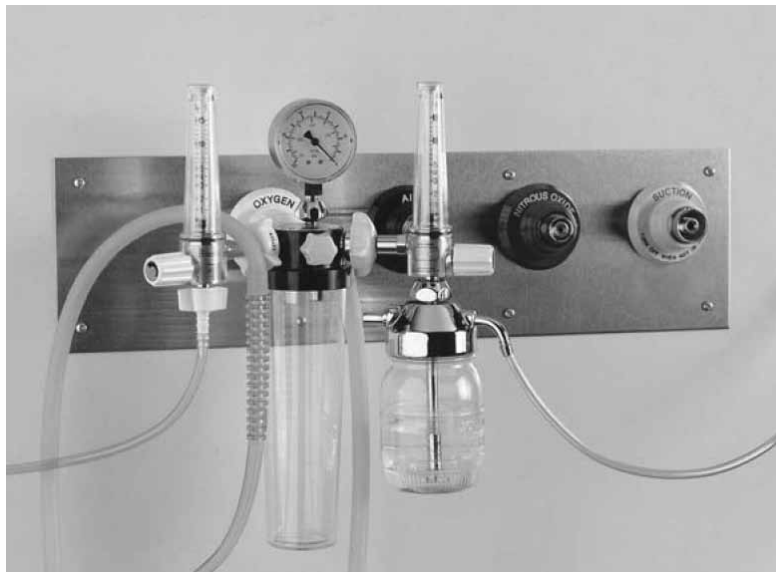
The oxygen outlets are self sealing fittings which will accept flowmeters or other standard oxygen administration equipment.

If connected to a cylinder regulator, ensure that the cylinder valve is turned on.

Attach a flowmeter to the self sealing oxygen outlet.

Open the flowmeter flow control and check that operation is satisfactory through the full range of flows.

Repeat this action on the second self sealing oxygen outlet if dual administration is required.



Twin-O-Vac fitted with two flowmeters, humidifier, suction tubing and catheter  
*Figure 2*

## 6.8 Cleaning and Disinfection

The Twin-O-Vac and its accessories must be thoroughly cleaned after each use. When cleaning use only legally marketed commercially available disinfectants or sterilising agents. Disinfectants and sterilising agents must only be used in accordance with their manufacturers instructions.

The exterior of the Twin-O-Vac should be cleaned by wiping over with a mild soap solution. Care should be taken that none of the cleaning solution enters the gas passages of the Twin-O-Vac.

### NOTE:

1. For all cleaning and sterilisation procedures the vacuum gauge and the bacteria filter must be removed. After sterilisation, a clean, dry, bacteria filter should be fitted.
2. Always sterilise the domed metal filter cover.
3. Do not immerse the Twin-O-Vac head in any fluid.
4. The use of chemical disinfectants is not recommended.

## Autoclaving

The Twin-O-Vac may be autoclaved but repeated applications may reduce the life of the product. Remove the vacuum gauge. Autoclave temperatures must not exceed 134°C (280°F).

## Ethylene Oxide

After thorough cleaning in accordance with standard hospital procedures, the Twin-O-Vac may be disinfected in ethylene oxide gas. After disinfection, ensure that adequate purging and aeration is carried out before placing the unit back into service.



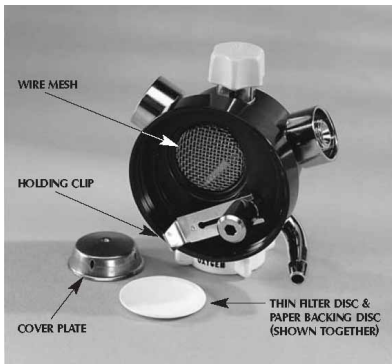
## 7. CHECKS AND INSPECTION BY THE USER

Remove the Twin-O-Vac plastic jar and turn the lid upside down.

Remove the domed filter cover plate by swinging the clip to one side and check that a clean, dry bacteria filter has been installed.

The filter consists of two parts, a thin filter disc which is placed against the wire mesh screen and a thicker backing disc which is placed on top of the filter.

See *Figure 3* below.



## 8. SERVICE RECOMMENDATIONS

At monthly intervals carry out the following checks:-

1. Inspect for cleanliness
2. Check that a clean, dry filter is fitted and that filters are being changed regularly.
3. Check that inlet and outlet connections are tight. Check that the gauge connection is tight. If loose fittings are discovered, contact your local service centre.
4. Carry out the checks described in Sections 6 of this manual.

## 9. ACCESSORIES AND REPLACEMENT PARTS

### 9.1 Twin-O-Vac Accessories

Listed below are some of the accessories suitable for use with the Twin-O-Vac. It is recommended that if any other accessories are intended to be used with a Twin-O-Vac your nearest authorised distributor should be contacted to check the compatibility of the accessory.

Description	Part No.
Series-O Oxygen Regulator - Type 10 Handwheel inlet, SIS Outlet	518800
Series-O Oxygen Regulator - Pin Index Yoke inlet, SIS Outlet	518804
EZI-FLOW Oxygen Flowmeter - 0-15 l/min, SIS Handwheel Inlet	515800
EZI-FLOW Oxygen Flowmeter - 0-2.5 l/min, SIS Handwheel Inlet	515824
Flowmeter Gauge Type - 0-14 l/min, SIS Handwheel Inlet	TM17
Humidifier - 1/4" BSP female Inlet	TM11
Suction Tubing	
Suction Catheter	
Suction Handpiece	

### 9.2 User Replacement Parts

Listed below are the items that are considered to be user replaceable parts. It is recommended that the user keep stock of items such as filters, o-rings and the sealing washer to ensure that the Twin-O-Vac is quickly replenished after any items are used.

Item	Part No.
O-ring (oxygen inlet SIS handwheel)	552088 (10 Pack)
O-ring (gauge adaptor)	515754 (Kit)
Sealing washer for jar	515754 (Kit)
Receiver Jar 400 ml	554024
Gauge Vacuum (-100kPa)	522501
Bacteria Filter, Millipore AAWP03700 (Pack of 100)	554050 (100 Pack)

## 10. SPECIFICATIONS

	TM117G	TM118	518632	518633
Inlet Pressure	400 kPa	50 psi	400 kPa	50 psi
Inlet Connection	SIS	DISS	SIS	DISS
Outlet Connection (Suction)	Tubing connection nominal 8mm I.D. (5/16" I.D.)			
Developed negative pressure at max. setting. (mmHg)	400 min	350 min	150-200 min	150-200 min
Free air displacement (L/min)	16	14	16	16
Gas consumption (L/min)	22	20	22	20

### NOTES:

SIS - Sleeve Indexed System inlet connections as per AS 2896.

DISS - Diameter Indexed Safety System as per CGA V-5.

CGA - Compressed Gas Association.

The following specifications apply to all models:-

#### Capacity:

Receiver Jar Large - 400 ml.

#### Suction Control Knob:

Nylon plastic, colour coded yellow.

#### Oxygen Flow Performance:

Minimum flow rate from oxygen outlets: 125 L/min.

**Bacteria Filter:**

A Standard Millipore brand filter, number AAWP03700 (0.8 micron) acts as a bacteria filter between the jar contents and room air. Nominal diameter 37mm (1 7/16").

**Other Materials:**

Head Casting - anodised aluminium.

Suction valve - brass

Venturi - brass

Jars - High heat polyphthalate carbonate.

Handwheels - Colour coded Nylon plastic with brass insert.

Outlet Connections - Chrome plated brass.

**Weight:**

Twin-O-Vac without gauge 620g.

Twin-O-Vac with gauge 720g.

**11. WARRANTY**

LIMITED WARRANTY: CIGWELD Pty Ltd, An ESAB Brand, hereafter, "CIGWELD" warrants to customers of its authorized distributors hereafter "Purchaser" that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the CIGWELD products as stated below, CIGWELD shall, upon notification thereof and substantiation that the product has been stored, installed,

operated, and maintained in accordance with CIGWELD's specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at CIGWELD's sole option, of any components or parts of the product determined by CIGWELD to be defective.

CIGWELD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: CIGWELD SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOST PROFITS AND BUSINESS INTERRUPTION.

The remedies of the Purchaser set forth herein are exclusive and the liability of CIGWELD with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by CIGWELD whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based. No employee, agent, or representative of CIGWELD is authorized to change this warranty in any way or grant any other warranty.

PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH IN CIGWELD'S SOLE JUDGEMENT MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY CIGWELD PRODUCT. PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF THE PRODUCT IS SOLD TO PURCHASER BY NON-AUTHORIZED PERSONS.

The warranty is effective for the time stated below beginning on the date that the authorized distributor delivers the products to the Purchaser. Notwithstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date CIGWELD delivered the product to the authorized distributor.

Any claim under this warranty must be made within the warranty period which commences on the date of purchase of the product.

To make a claim under the warranty, take the product (with proof of purchase from a Cigweld Accredited Seller) to the store where you purchased the product or contact Cigweld Customer Care 1300 654 674 for advice on your nearest Service Provider. CIGWELD reserves the right to request documented evidence of date of purchase. CIGWELD or our Accredited Distributor must be notified in writing of its claim within seven (7) days of becoming aware of the basis thereof, and at its own expense returning the goods which are the subject of the claim to CIGWELD or nominated Accredited Distributor/Accredited Service Provider

This warranty is given.

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This warranty is provided in addition to other rights and remedies you have under law: Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Cigweld Pty. Ltd. warrants this product for a period of one year from the date of purchase.

Cigweld Pty. Ltd. warrants this product for a period of two years from the date of purchase (conditions apply).



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In the interest of continuous improvement, CIGWELD Pty Ltd ABN 56 007 226 815 reserve the right to change the specifications or design on any of its products without prior notice.