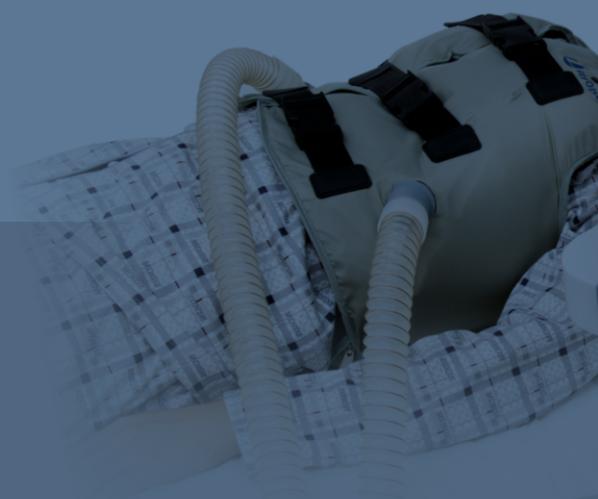


# Lifotronic

— Caring for Better Life —

(SSE: 688389)

# High Frequency > Chest Wall Oscillation (HFCWO)



**PV-100**

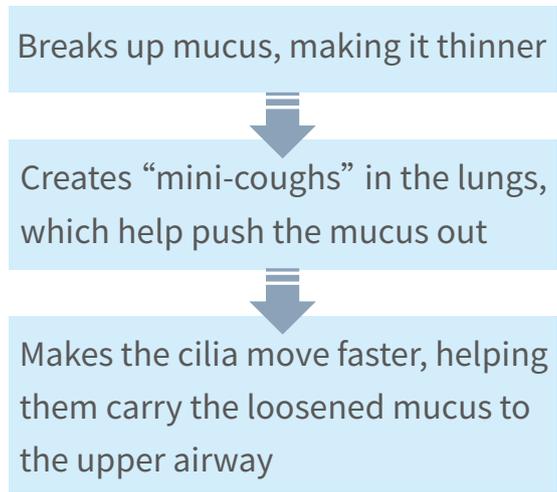
HFCWO Module

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# 01 High Frequency Chest Wall Oscillation (HFCWO)

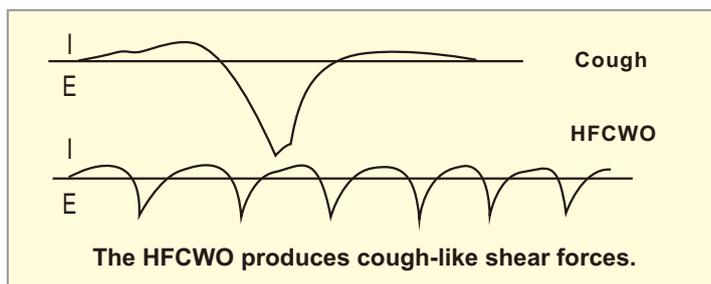
High Frequency Chest Wall Oscillation simulates the cough of human by rapidly homogeneously inflating and deflating the vest. Retained secretions will be removed by the shear force of the cough airflow or helped by negative pressure collection.

## How Does HFCWO Vest Work?



## Shear Force of HFCWO

Shear forces are unaligned forces defined by frictional force between airflow and intima of trachea wall which is related to the airflow velocity.



## Airflow Velocity Comparison

| Type                         | Flow Rate    | Efficiency |
|------------------------------|--------------|------------|
| Relaxed Breathing            | 120 mL/sec.  | 1x         |
| Chest Physical Therapy (CPT) | 480 mL/sec.  | 4x         |
| Hand Flutter                 | 480 mL/sec.  | 4x         |
| HFCWO                        | 1943 mL/sec. | 16x        |
| Cough                        | 3429 mL/sec. | 29x        |

## 02 Indications

Asthma, Bronchiectasis, Lung Infection, Emphysema, Pneumonia, Myasthenia Gravis, bronchitis, Occupational Lung Disease, Cystic Fibrosis, AIDS with CARINI Cystic Pneumonia, Coma, Respiratory Failure, Pulmonary Atelectasis, Spinal Muscular Atrophy and etc.

After Tracheostomy, Post-operative Airway Management, Spinal Cord Damage, Ventilator Dependent patient and etc.



## 03 Applicable Departments

- Respiration Medicine
- ICU
- Neurology Department
- Gerontology Department
- Oncology Department
- Rehabilitation Department
- Neurosurgery Department
- Cardiothoracic Surgery
- General Surgery Department
- Orthopedics Department
- Emergency Department
- Pediatrics Department





# 04 Comparison Table among High Frequency Chest Wall Oscillation (HFCWO), Hand Flutter and Chest Physical Therapy(CPT)

|                      | HFCWO  | Hand Flutter                   | CPT                            |
|----------------------|--|--------------------------------|--------------------------------|
| Mechanism            | Whole Chest Wall Vibration                               | Part Chest Wall Vibration      | Part Chest Wall Vibration      |
| Airflow Velocity     | High   | Low                            | Low                            |
| Position Requirement | No<br>(Including Coma-patients)                          | Prone,<br>Recumbent and Seated | Prone,<br>Recumbent and Seated |
| Safety               | Safe with Soft Mechanism Force to avoid rib or skin hurt | Safe                           | Safe                           |
| Comfort              | Yes  | No                             | No                             |
| Work Flow            | Simple   | Complex                        | Complex                        |
| Operator             | Easy to Use  | professional Required          | professional Required          |



## Connecting tubes



# 05 Features

Powerful  
20Hz/  
30mmHg

● **Powerful:**

- Frequency range is from 1Hz to 20Hz
- Pressure range is from 3mmHg to 30mmHg

Effective  
2-3  
times more effective

● **Effective:**

HFCWO has been proved 2 to 3 times more effective than traditional chest physical therapy techniques in terms of mucus removal<sup>1</sup>.

Clear  
8-inch  
touch screen

● **Efficient:**

- Unlike other techniques performed manually, HFCWO is a highly automated system almost operating on its own, requires much less presence of medical staff.
- HFCWO therapy is time-saving. The average therapy session is only 20 minutes long.

Efficient  
20  
min/session

● **Ease of use:**

- Plug-and-play design
- Intuitive interface on a large touch screen
- Automated system with productive workflow

● **Optional diversity:**

- From reusable to disposable vests and chest straps.
- Various sizes of vests and chest straps.



# 06 Accessories

| Code               | Description                    |
|--------------------|--------------------------------|
| 03-P02G000 - 00029 | Vest Reusable XL 1pcs/Box      |
| 03-P02G000 - 00004 | Vest Reusable L 1pcs/Box       |
| 03-P02G000 - 00005 | Vest Reusable M 1pcs/Box       |
| 03-P02G000 - 00006 | Vest Reusable S 1pcs/Box       |
| 03-P02G000 - 00007 | Vest Reusable XS 1pcs/Box      |
| 03-P02G000 - 00008 | Vest Reusable XSS 1pcs/Box     |
| 03-P02G000 - 00009 | Vest Reusable XXS 1pcs/Box     |
| 03-P02G000 - 00010 | Vest Disposable XL 5pcs/Box    |
| 03-P02G000 - 00011 | Vest Disposable L 5pcs/Box     |
| 03-P02G000 - 00012 | Vest Disposable M 5pcs/Box     |
| 03-P02G000 - 00013 | Vest Disposable S 5pcs/Box     |
| 03-P02G000 - 00014 | Vest Disposable XS 5pcs/Box    |
| 03-P02G000 - 00015 | Vest Disposable XSS 5pcs/Box   |
| 03-P02G000 - 00016 | Vest Disposable XXS 5pcs/Box   |
| 03-P02G000 - 00017 | Strap Reusable XL 1pcs/Box     |
| 03-P02G000 - 00018 | Strap Reusable L 1pcs/Box      |
| 03-P02G000 - 00019 | Strap Reusable M 1pcs/Box      |
| 03-P02G000-00020   | Strap Reusable S 1pcs/Box      |
| 03-P02G000-00021   | Strap Reusable XS 1pcs/Box     |
| 03-P02G000 - 00022 | Strap Reusable XXS 1pcs/Box    |
| 03-P02G000 - 00023 | Strap Disposable XL 10pcs/Box  |
| 03-P02G000 - 00024 | Strap Disposable L 10pcs/Box   |
| 03-P02G000 - 00025 | Strap Disposable M 10pcs/Box   |
| 03-P02G000 - 00026 | Strap Disposable S 10pcs/Box   |
| 03-P02G000 - 00027 | Strap Disposable XS 10pcs/Box  |
| 03-P02G000 - 00028 | Strap Disposable XXS 10pcs/Box |
| 04-P02A000 - 00009 | Air Hose 1pc/pack              |

# 07 References

- Significantly more sputum was expectorated during HFCWO than during CPT/PD as determined by both the wet ( $P < 0.001$ ) and the dry ( $P < 0.01$ ) measurements.
- HFCWO treatment is safe for trauma patients with lung and chest wall injuries.
- HFCWO is well tolerated in adults hospitalized for acute asthma or COPD and significantly improves dyspnea.

1. Janet Klufft: A Comparison of Bronchial Drainage Treatments in Cystic Fibrosis, *Pediatric Pulmonology* 22:271-274
2. Casandra A Anderson: Evaluation of the safety of high-frequency chest wall oscillation (HFCWO) therapy in blunt thoracic trauma patients, *Journal of Trauma Management & Outcomes* 2008, 2:8
3. Amit K Mahajan: High frequency chest wall oscillation for asthma and chronic obstructive pulmonary disease exacerbations: a randomized sham-controlled clinical trial, Mahajan et al. *Respiratory Research* 2011, 12:120



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