Vibralung®
Acoustical Percussor

Standard accessories supplied with the Vibralung® Acoustical Percussor and also available as replacement parts, as indicated below.

PATIENT INJURY OR INEFFECTIVE THERAPY CAN RESULT FROM IMPROPER ASSEMBLY OR OPERATION. PLEASE READ THE FOLLOWING WARNINGS BEFORE ASSEMBLING OR OPERATING DEVICE.

- Federal law restricts this device to sale by or on the order of a physician. Read the complete Instruction Manual before use.
- Unskilled or untrained personnel should not operate or apply this device to patients.
- Use only as intended and described in the Instruction Manual and supporting documentation.
- Use only on cooperative patients who can properly self-administer following training.
- Use only with the supplied mouthpiece and accessory adapters. If used for simultaneous aerosol delivery and/or PEP, use only the supplied Aerosol Y-adapter and Circulaire® II aerosol delivery system. Do not use other nebulizers or PEP devices.
- Be prepared to assist patient with removal of secretions (cough coaching, suction) as needed.
- The HHT, Cone and related Y-adapters are for single patient use, multiple treatment sessions during single hospitalization and should be changed as directed.
- Do not hold Hand-held Transducer up to your ear. Hearing damage may result.

Part Number	Description
9500	Vibralung® Treatment Control Unit, hospital model, with Battery Charger, Instructions for Use; single unit. (Vibralung Patient Kit not included.)
9501	Vibralung® Complete with Travel bag and Patient Exchange Kit; single unit.
9600/9600-10	Vibralung® Patient Kit, disposable (Hand-held Transducer, Cone, Standard Y-adapter, Disposable Ear Plugs, Mouthpiece and PEP Resistor), hospital model; single unit or case of 10.
9605-10	Vibralung® Patient Kit with Circulaire® II Model 0295; case of 10.
9640	Vibralung® Patient Exchange Kit, HHT, Single-patient Use; case of 25.
9630	Vibralung® Battery Charger, Instructions for Use; single unit.
4056	Pole-mount Bracket, Instructions for Use; single unit.
0391R	Circulaire® II *Hybrid*™ High-Efficiency Aerosol Drug Delivery System with Reusable VixOne, PEP Resistor and Bacterial/Viral Expiratory Filter; case of 10.
0393R	Circulaire® II *Hybrid*™ High-Efficiency Aerosol Drug Delivery System with Reusable VixOne and PEP Resistor; case of 10.
0394	Circulaire® II *Hybrid*™ High-Efficiency Aerosol Drug Delivery System with Reusable VixOne, PEP Resistor, Bacterial/Viral Expiratory Filter and PEP Manometer; case of 10.
0262	PEP Accessory Kit with Manometer; case of 10.
0336	Circulaire® II High Efficiency Aerosol Drug Delivery System; case of 25.

Westmed
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Vibralung®
Acoustical Percussor

The New Sound of Airway Clearance Therapy

Westmed
When Your Care Is Critical

Vibralung®
Acoustical Percussor

A Paradigm Shift in Respiratory Care

Can you hear it? It's the new sound of the Vibralung® Acoustical Percussor, and it's starting a revolution in Airway Clearance Therapy (ACT). Only the Vibralung® Acoustical Percussor applies sound waves over a wide range of frequencies to vibrate the column of gas in the tracheobronchial tract. As a result, mucus is loosened and separated throughout the airways, to promote safe, effective and gentle ACT like no other alternative.

The Vibralung® Acoustical Percussor can be used either as a sole or adjunct therapy, depending upon the patient's needs and response. In addition, Positive Expiratory Pressure (PEP) can be applied simultaneously for its beneficial effects. Also, aerosol therapy can be used for the delivery of wetting agents and/or medications.

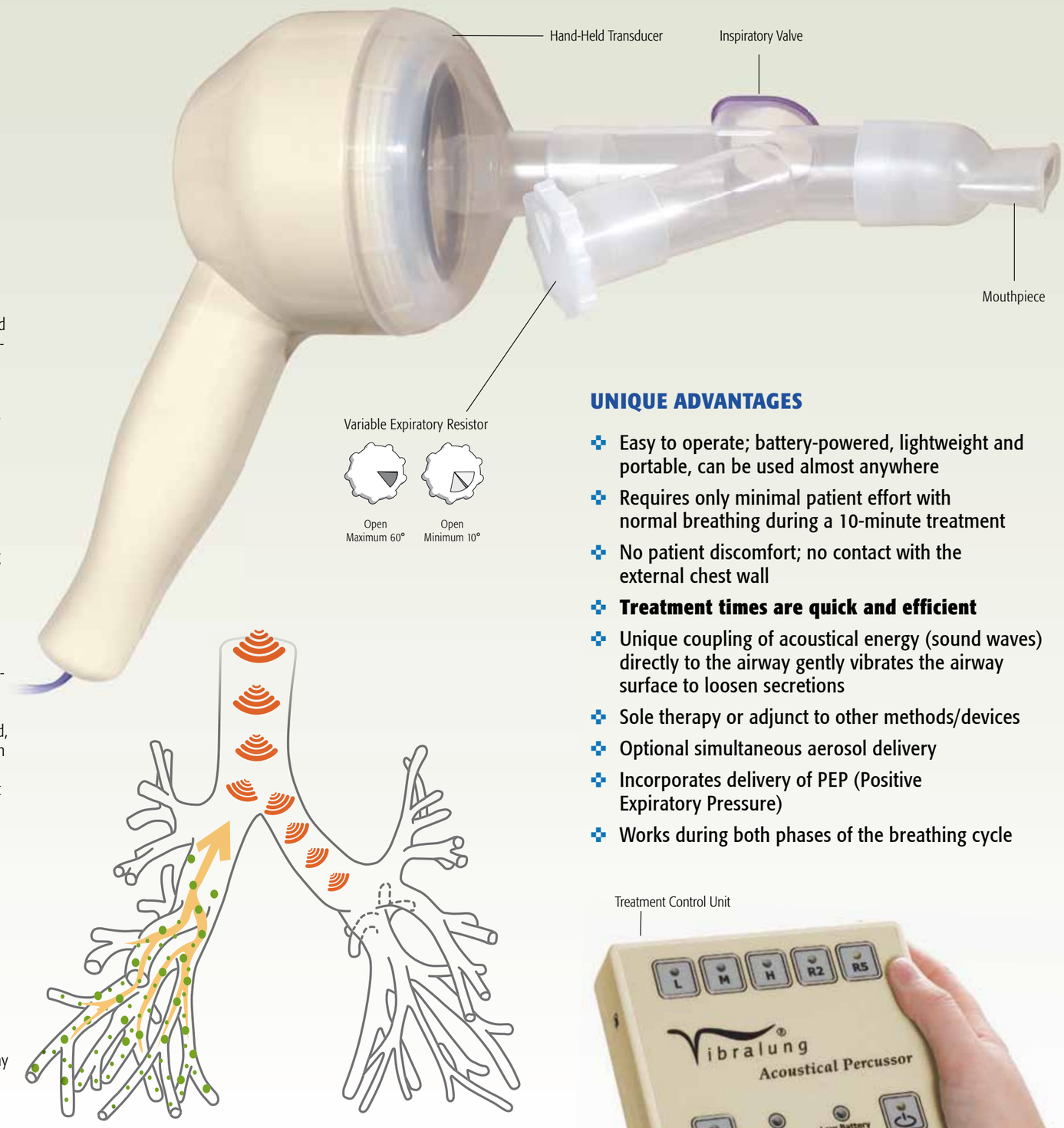
The Gentler Approach to ACT

The Vibralung® Acoustical Percussor is a gentler form of ACT than oscillatory PEP devices, or those that make contact with the external chest wall. It may also be used for airway clearance in some conditions where other means like vests and hand-held chest percussors cannot be used, such as with patients that have chest injuries, burns, fresh surgical wounds or injured/broken ribs. It's the ideal choice whenever airway clearance is the goal and patient comfort is preferred.

Clinical Application and Intended Use

The Vibralung® Acoustical Percussor is intended for use in the hospital or at home for patients with respiratory diseases and related conditions that involve: increased mucus production, infection and inspissation of respiratory secretions, and defective mucociliary clearance.

These conditions are typical in patients diagnosed with: cystic fibrosis, chronic bronchitis, bronchiectasis, pneumonia, ciliary dyskinesia syndromes, asthma, muscular dystrophy, post-operative atelectasis plus neuromuscular respiratory impairments, thoracic bellows defects, and any other cardiorespiratory or neuromuscular diseases that inhibit effective cough, mucokinesis, airway clearance and expectoration.



The Vibralung Acoustical Percussor applies sound waves to loosen and separate mucus in the airways, promoting safe, effective and gentle ACT like no other alternative.

UNIQUE ADVANTAGES

- Easy to operate; battery-powered, lightweight and portable, can be used almost anywhere
- Requires only minimal patient effort with normal breathing during a 10-minute treatment
- No patient discomfort; no contact with the external chest wall
- **Treatment times are quick and efficient**
- Unique coupling of acoustical energy (sound waves) directly to the airway gently vibrates the airway surface to loosen secretions
- Sole therapy or adjunct to other methods/devices
- Optional simultaneous aerosol delivery
- Incorporates delivery of PEP (Positive Expiratory Pressure)
- Works during both phases of the breathing cycle

THEORY OF OPERATION

Waveguide Principle

Among the physical characteristics of sound is the fact that it can be conducted through tubes. Tubes that conduct sound from one location to another are known as "waveguides." The tracheobronchial airways function to some extent as a series of waveguides, inasmuch as they are capable of conducting sound bi-directionally.

Acoustic resonance is the tendency of a structure to vibrate when it is driven at a frequency that approximates one of its own natural frequencies. The frequency at which a structure vibrates maximally is known as its resonant frequency or RF. The airways of the human lung have multiple RFs.

Different Resonant Frequencies for Different Parts of the Lung

The rationale behind using a wide, continuous, overlapping acoustic spectrum in treating patients with respiratory disease relates to the regional irregularities that can exist in the diseased human respiratory system and the desire to vibrate the airways at or near their particular RF. The human respiratory system has an average RF in the range of 5–40 Hz measured at the airway opening (mouth). The exact RF of any particular tracheobronchial segment is dependent upon the location of that segment; the type, severity and location(s) of any disease process; and the length and diameter of the segment. Therefore, treating the lung with a single RF may not be as effective as using a wide range of frequencies.

As a generalization, long and wide airways tend to have a lower RF while short and narrow airways have a higher RF. **The Vibralung® Acoustical Percussor utilizes frequencies from 5 to 1,200 Hz to achieve resonance in all airways, large and small.**