A HILL-ROM SOLUTION

CLINITRON
AIR FLUIDIZED THERAPY UNIT

Hill-Rom®
A HILLENBRAND INDUSTRY
The CLINITRON Air Fluidized Therapy Unit is indicated for the treatment of pressure ulcers and the management of extensive skin lesions and fresh surgical wounds. It is also an integral part of the care plans for patients experiencing severe pain. The CLINITRON Air Fluidized Therapy Unit is the ideal solution for unparalleled support technology.

The System provides a wide range of benefits:
- Accelerated wound healing
- Safe positioning directly on flap and graft sites
- Increased patient comfort
- Improved patient-management efficiency
- Reduced length of stay

INSIDE THE CLINITRON AIR FLUIDIZED THERAPY SYSTEM
This unique System is the product of the successful adaptation of the principles of small-particle fluidization. The particles themselves are medical-grade ceramic microspheres, which are contained in the fluidization chamber of the CLINITRON Air Fluidized Therapy Unit. Room air is drawn into the base of the unit, where it is filtered, heated or cooled as required, and channeled through the “beads,” setting them in motion and creating the unique fluid effect.

Ambient air is drawn into the compressor beneath the fluidization tank. Here the air is filtered to remove any dust or particulate matter. A special intake muffler and sound-proof housing reduce compressor noise.

After being warmed by the effect of compression, the air passes through a heat exchanger, where its temperature is returned to near ambient levels, and into the heating chamber. Here the air passes over an electrical heating element that functions in response to a temperature probe located in the fluidization tank. The temperature of the air reaching the patient is regulated by setting the temperature control and the control panel.

After leaving the heating chamber, the air enters the plenum chamber and is distributed beneath the porous surface of the diffuser board. A removable sieve rests on top of the diffuser board, along with the mass of silicone-coated soda-lime microspheres.

After passing through the diffuser board, the compressed air surrounds the microspheres to create fluidization throughout the tank. The microspheres, with diameters of 50 to 150 microns, are contained by the polyester filter sheet, permitting the warm, gentle airflow to reach the patient.
**How Pressure Ulcer Size Changed:**
Air Fluidized Therapy vs Standard Beds

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Ulcer Size</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Fluidized Therapy</td>
<td>Decreased</td>
<td>50%</td>
</tr>
<tr>
<td>Standard Beds</td>
<td>Increased</td>
<td>40%</td>
</tr>
</tbody>
</table>

*Adapted from Munro et al.*

- Average diameter.
- In study "A", mean size of ulcers shrank to less than half in the group on CLINITRON Air Fluidized Therapy and enlarged in the group on standard beds.

**Outcome of Pressure Ulcers:**
Air Fluidized Therapy vs Pressure-Reduction Surfaces

<table>
<thead>
<tr>
<th>Total Pressure Ulcers</th>
<th>Average Change in Total Surface Area (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Fluidized Therapy</td>
<td>+0.5 (n=31)</td>
</tr>
<tr>
<td>Pressure-Reduction</td>
<td>-1.2 (n=34)</td>
</tr>
</tbody>
</table>

*(P=0.01)*

- Adapted from Alman et al.

- Pressure-reduction surfaces may include egg crates, alternating pressure pads, etc.
- In study "B", pressure ulcers decreased in size in patients on air fluidized therapy while they increased in size in patients on pressure-reduction surfaces, with the greatest differences seen with large pressure ulcers.
- Patients with pressure ulcers improved 1.5 to 2 times more frequently on air fluidized therapy.

**Pain and Comfort Response:**
Air Fluidized Therapy vs Pressure-Reduction Surfaces

<table>
<thead>
<tr>
<th>Large Pressure Ulcers</th>
<th>Average Change in Total Surface Area (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Fluidized Therapy</td>
<td>+4.0 (n=31)</td>
</tr>
<tr>
<td>Pressure-Reduction</td>
<td>-5.3 (n=34)</td>
</tr>
</tbody>
</table>

*(P=0.01)*

*Adapted from Alman et al.*

- Patients on air fluidized therapy experienced more than twofold decrease in pain.
- Patient comfort increased nearly three times as much on air fluidized therapy.

**CLINITRON Air Fluidized Therapy Helps Lower the Cost of Care.**

- 50% reduction in daily patient care costs.
- 27% shorter length of stay.
- Lowers cost of nursing time 46%.
- 56% lower cost of medications, dressings, linens.
- Less morbidity and mortality expected.

*From various sources.*
AIR FLUIDIZATION PROVIDES A WIDE RANGE OF THERAPEUTIC BENEFITS WITH A HIGHER DEGREE OF CERTAINTY

ACHIEVES PRESSURES WELL BELOW CAPILLARY CLOSURE
The System’s artificial fluid provides the benefits of true flotation.

- Patients rest comfortably with no constraints on positioning at well below capillary closure levels.
- Pressures are reduced over critical bony prominences to help provide adequate blood flow to all pressure and wound sites even in the most compromised patients.

Because the density of the fluid is approximately 1.5 times that of water, the System offers a more stable support surface than conventional water beds.

OFFERS A CLEANER PATIENT ENVIRONMENT
The System acts as a particulate filter. The air rising through the filter sheet contains only one-third the dust and particles that are present in the normal hospital environment. The filter sheet is permeable to the downward flow of body fluids (plasma, blood, perspiration and urine).

As body fluids come into contact with the microspheres, clumping occurs. The clumps develop a dry crust and fall to the bottom of the tank, eight to ten inches away from the patient. The clumps are then removed by Hill-Rom service technicians.

VIRTUALY ELIMINATES SHEAR AND FRICTION
The patient is separated from the artificial fluid by a polyester filter sheet. The sheet is loose fitting and moves freely with the patient over the fluid. The result is significant reduction of the destructive forces of shear and friction.

PREVENTS MACERATION
The filter sheet is permeable, allowing the downward flow of fluids away from the patient and the upward flow of the warm and gentle air to the patient’s skin. This dual action prevents the softening of tissue often caused by prolonged exposure to moisture, keeping healthy skin warm and dry.

When a moist wound or graft environment is indicated, the airflow can be selectively occluded by means of an impervious sheet or dressing.

CONTROLS THE TEMPERATURE OF THE PATIENT’S ENVIRONMENT

![Temperature Control Diagram]

The System can be adjusted within a range of 82° to 104.2°F. This temperature range is wide enough to enhance wound therapy as well as to aid in the treatment of temperature-sensitive conditions, such as hyper- and hypothermia.

FACILITATES PATIENT POSITIONING
When turned off, the System defluidizes and the microspheres contour to the body to gently immobilize the patient for dressing changes and other routine care. Defluidization also allows positioning for pulmonary care, Trendelenburg, and Reverse Trendelenburg. CPR procedures can be performed immediately and without a cardiac board.
SOLUTIONS FOR AN ARRAY OF SPECIALTY AREAS

PLASTIC SURGERY
Provides low pressures and greatly reduces shear and friction (the forces often responsible for flap damage). Patients can rest in a supine position directly on flap, graft, or donor sites. Facilitates multiple-site surgical procedures. Patient comfort is enhanced and restlessness that may prolong healing is minimized.

ORTHOPAEDICS
Provides stable support for traction and multiple trauma patients in a low-pressure environment that prevents skin breakdown and enhances the healing of existing damaged tissue. Eliminates the need for turning for pressure relief and permits easy access to the patient’s posterior surfaces.

BURNS
Low pressures and a clean environment minimize the potential for burn-site conversion. Donor-site healing is also enhanced by the warm, dry, and clean environment, thereby permitting earlier reharvesting. Patient may be placed directly on burn, graft, or donor sites to increase comfort and facilitate patient management.

GERIATRICS
Promotes rapid healing of pressure ulcers and associated surgical repairs. Increases comfort and allows unrestricted positioning. May reduce need for sedatives and analgesics, leaving patients more alert and cooperative.

INTENSIVE CARE
Serves as pressure ulcer therapy for multiple trauma patients or for those requiring extended, intensive care. Simplifies nursing management problems presented by patients with multiple lines and tubes who cannot be turned. Allows CPR to be initiated immediately.

ONCOCOLOGY
Allows patients to remain in position of comfort. Because of the low-pressure environment, less force is needed to turn or position patients, minimizing pain and decreasing the risk of pathological fractures. The need for pain medication is often reduced.

NEUROLOGY
Functions as pressure ulcer therapy during prolonged periods of immobilization. Eases patient management in complicated cases such as Guillain-Barré syndrome, multiple sclerosis, CVA, and coma.
CLINITRON®
AIR FLUIDIZED THERAPY UNIT

OPTIONAL EQUIPMENT
Pulsator
CLINILIFT™ Patient Mover
Arm Abductors
Footboard

STANDARD FEATURES
Microspheres
One (1) Filter Sheet
I.V. Solution Bar
Four (4) Catheter Bag Hangers
Hand Switch Assembly
Orthopaedic Frame, composed of:
One (1) Horizontal Bar
Two (2) Vertical Support Frames
One (1) Orthopaedic Trapeze

Foot Switch Assembly
Foam Backrest
Siderails
Sidestep
Shock Cord

TECHNICAL DATA

| Length:                  | Overall: 87 in.                               |
|                         | Inside: 84 in.                                |
|                         | Width: 35 in.                                 |
|                         | Overall: 32 in.                               |
|                         | Inside: 12 in.                                |
|                         | Ground Clearance: 7½ in.                     |
| Weight:                 | Unit Empty: 380 lbs.                          |
|                         | Microspheres: 1250 lbs.                      |
|                         | Total Weight: 1630 lbs.                      |
| Temperature Range:      | 82° to 104.2°F (Ambient room temperature 70°F) |

Noise Level: 40.5 dBA
Microspheres: Medical grade, silicone-coated soda lime beads 55 to 150 micron diameter
Filter Sheets: Monofilament polyester with approximately 37-micron square openings
Foam Backrest: Sectional polyurethane foam wedge provides the following degrees of elevation: 15°, 20°, 30°, 45°

POWER REQUIREMENTS

<table>
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<tr>
<th>Voltage: 115V AC, 60Hz</th>
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<tbody>
<tr>
<td>Current:</td>
</tr>
<tr>
<td>Operating: 6.8 to 9.2 Amps</td>
</tr>
<tr>
<td>Starting: 27 Amps</td>
</tr>
<tr>
<td>Meets U.L. Spec. 541</td>
</tr>
<tr>
<td>Approved by E.T.L. Testing Lab (file number upon request)</td>
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NOTE: For more information on the Clinitron Elexis Unit, see separate brochure.

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