

# TABLE OF CONTENTS

|                                       |    |
|---------------------------------------|----|
| STATEMENTS & SYMBOLS .....            | 2  |
| INTRODUCTION.....                     | 3  |
| General.....                          | 3  |
| Intended Use .....                    | 3  |
| Contraindication.....                 | 3  |
| PACKAGE CONTENT .....                 | 4  |
| PRODUCT FUNCTIONS.....                | 5  |
| Pump Unit.....                        | 5  |
| Bubble Pad or Cell-type Mattress..... | 5  |
| INSTALLATION .....                    | 7  |
| GROUNDING INSTRUCTIONS.....           | 8  |
| OPERATION .....                       | 9  |
| General.....                          | 9  |
| CPR function .....                    | 11 |
| Pressure set up.....                  | 11 |
| Low pressure warning.....             | 11 |
| CLEANING.....                         | 12 |
| HANDLING AND STORAGE .....            | 13 |
| MAINTENANCE .....                     | 13 |
| General.....                          | 13 |
| Low pressure .....                    | 13 |
| TROUBLESHOOTING .....                 | 14 |
| SPECIFICATIONS.....                   | 15 |
| System .....                          | 15 |
| Pump Unit.....                        | 16 |
| Bubble Pad or Mattress .....          | 16 |

# STATEMENTS & SYMBOLS

## *Note, caution, warning & danger statements*

### **NOTE**

Indicates some tips or some information users should be aware of.

### **CAUTION**

Indicates correct operating or maintenance procedure in order to prevent damage to or destruction of the equipment or other property.

### **WARNING/DANGER**

Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury.

## *Others*

Symbols on the printed label on the outside package box are as below:



**Grounding Terminal**



**Always read the operating instructions before use.**

# INTRODUCTION

This manual should be used for the initial set up of the system and for reference purposes.

## *General*

The ATS series is a high quality and affordable air support surface suitable for medium and high-risk pressure ulcer treatment. It has been specifically designed for prevention of bedsores and offers an affordable solution to 24-hour pressure area care.

The ATS series has been tested and certified for the following standards:

UL 1431

UL 60601-1 & CAN/CSA C22.2 No. 601.1

CE

FDA

## *Intended Use*

The ATS series is intended to reduce the incidence of pressure ulcers while optimizing patient comfort. It also provides the following:

- ▶ Individual home care setting and long-term care
- ▶ Pain management as prescribed by a physician.

## *Contraindication*

Patient conditions for which the application of pressure relieving therapy on an alternation system is contraindicated are as follows:

- ▶ Cervical or skeletal traction
- ▶ Unstable spinal cord injuries

# PACKAGE CONTENT

Check inside the package. If any of the following items should be missing or damaged, please contact your local dealer or service center for replacement immediately.

## *Pump Unit*

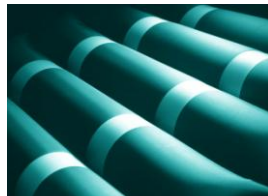
Make sure the type of pump is identical to which you purchased. Functionalities vary dependently on models.



## *Bubble Pad or Cell-type Mattress*

Bubble pad: Lay it on a foam base.

Cell type: The mattress comes with a base sheet. For cell height of more than 8 inches, a foam base is not a must.



## *Cover Sheet*

\*Optional  
The cover sheet makes cleaning an easy task.



## *Manual*

Always read this manual before using this product.

# PRODUCT FUNCTIONS

## *Pump Unit*

The functions of the pump unit for the ATS series are described below. Please refer to the figures of each type.

▶ **Power Switch:**

The switch is on the front panel of the unit.

Turn ON/OFF the power, the unit will start/stop operation.

▶ **Pressure-selector Knob:**

Turn the knob from the soft to firm position to select a pressure value.

▶ **Normal Pressure LED:**

Indicates the pressure has reached the set level.

▶ **Low Pressure LED:**

Indicates the pressure is below the set level.

▶ **Static/Alternating control:**

Sets the air mattress in static mode or alternating mode.

\* Your pump may not include all the functions listed.

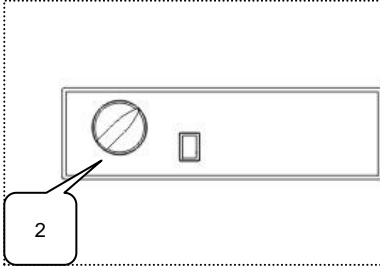
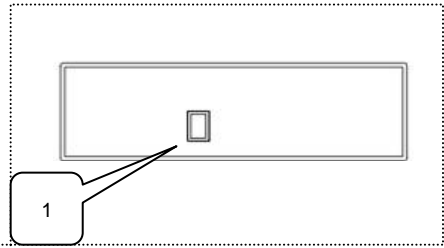
## *Bubble Pad or Cell-type Mattress*

The ATS series comes with bubble pad or cell type mattress of different materials, provided optionally with the pump unit.

Please refer to the Specifications section for details.

### ATS-000

1. Power Switch

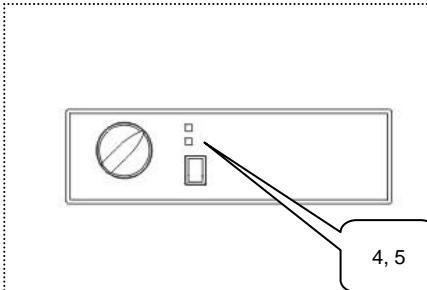
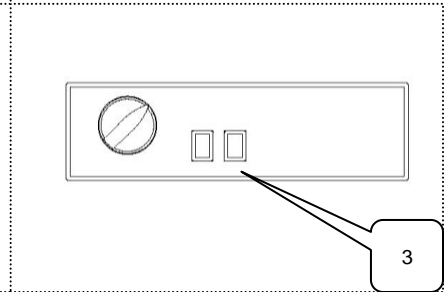


### ATS-001

1. Power Switch
2. Pressure-selector Knob

### ATS-004

1. Power Switch
2. Pressure-selector Knob
3. Static/Alternating control

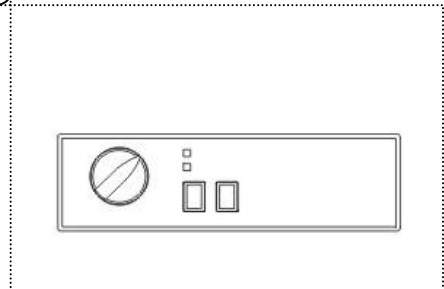


### ATS-005

1. Power Switch
2. Pressure-selector Knob
3. -----
4. Normal Pressure LED
5. Low Pressure LED

### ATS-006

1. Power Switch
2. Pressure-selector Knob
3. Static/Alternating control
4. Normal Pressure LED
5. Low Pressure LED



# INSTALLATION

- Step 1 ► Place the bubble pad or mattress flatly on the bed frame.  
The inflation tube should be towards the foot end. See figure below.



- Step 2 ► Cover with a cotton sheet to avoid direct skin contact and reduce friction.
- Step 3 ► Hang the pump unit on the foot end of the bed frame and make sure it is stable.
- Step 4 ► Connect the inflation tubes from the mattress to the pump's inflating nozzles.  
Make sure they are properly attached.

## **NOTE !**

**Make sure the air hoses are not kinked or tucked under the mattress.  
Also check to ensure the CPR valve is properly attached.**

- Step 5 ► Plug the power cord into an electrical outlet with grounded AC power.  
This product should be grounded. The power cord has a grounding wire with a grounding pin. This three-wire plug must be plugged properly into an outlet and grounded as shown in the figures in the Grounding Instructions section.

## **NOTE !**

**Before inserting the plug into the outlet, make sure the voltage is compatible.  
Also make sure this product is well grounded.**

- Step 6 ► Turn on the power by pressing the power switch at the right side of the unit.  
Proceed to the Operation section.
- Step 7 ► Make sure to disconnect it by unplugging the power cord when it is not in use.

# GROUNDING INSTRUCTIONS

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord that contains a grounding wire with a grounding plug.

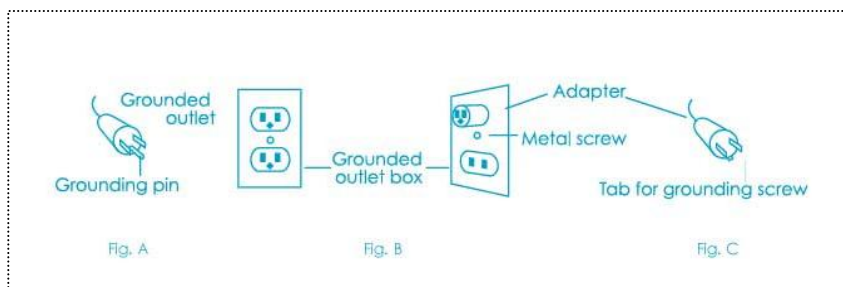
**DANGER** – Improper use of the grounding plug can result in a risk of electric shock.

If repair or replacement of the cord or plug is necessary, do not connect the grounding to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripe is the grounding wire.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.

This product has a grounding plug that looks like the plug illustrated in figure A below. A temporary adapter, which looks like the adapter illustrated in figure B and C, may be used to connect this plug to a 2-pole receptacle as shown in figure B if a properly grounded outlet is not available. The temporary adapter should be used only until properly grounded outlet (figure A) can be installed by a qualified electrician. The green colored rigid ear, lug, tab or the like extending from the adapter must be connected to a permanent ground such as properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by the screw.

If it is necessary to use an extension cord, use only a 3-wire extension cord that has a three-blade grounding plug and a 3-slot receptacle that will accept the plug on the product. Replace or repair if damaged.





# OPERATION



**Always read the operating instructions before use.**

## *General*

This product is designed to provide maximum comfort to home care patients. Make sure that you operate this product in a proper way to optimizing its value. Here we provide some general information you should be aware of.

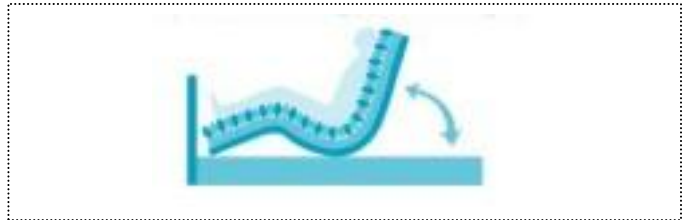
**For products:** DO NOT use another pump with different specifications or even from the ATS series. It is dangerous to use a pump with pressure capacity greater than 120 mmHg. This may result in cell-puncture.

DO NOT change any component by yourself. If there is need for replacement or repair, always contact your local dealer or service center.

**For patients:** When the Normal Pressure LED (green) comes on to indicate the pressure has been adjusted to a desired level of firmness, the patient can then lie on the mattress.

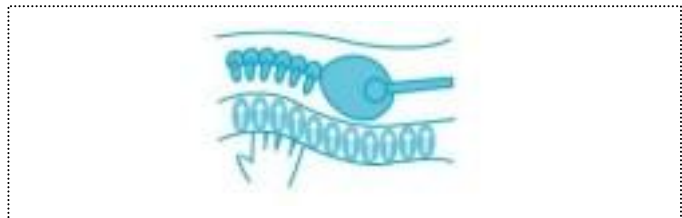
Please cover the mattress with a cotton sheet to avoid direct skin contact and for the patient's comfort.

A firm surface will make it easier for the patient to transfer or reposition. Make use of the static mode function. It can support the patient by keeping the mattress from bottoming out when the patient is in a sitting position. See figure below.



**Hand check:** Check to see if a suitable pressure is selected by sliding one hand between the air mattress and the foam base (or bed frame if there is no foam base) to feel the patient's buttock.

Users should be able to feel the space in between, and the acceptable range is approximately 25 to 40 mm (1" to 1-1/2"). This hand check procedure is issued by AH CPR.





**Always read the operating instructions before use.**

Please follow instructions below for detailed operating procedure of each type.

### **ATS-000**

Step 1 ▶ Turn on the power. The power LED will come on.  
The pump unit starts to pump air into the mattress.

### **ATS-001**

Step 1 ▶ Same as above.

Step 2 ▶ For time-saving in the first inflation, turn the pressure knob to the full Firm position.  
The pressure reaches the preset level by factory default within approximately 10–30 minutes.

#### **NOTE !**

**Time required for the initial inflation depends on the bubble pad or cell type mattress you purchased. It requires at least 10 minutes for a bubble pad, and 30 minutes for the 8" cell type mattress.**

Step 3 ▶ Turn the pressure-selector knob to adjust the pressure from the soft to firm position according to patient's weight and comfort.

#### **NOTE !**

**For suitable pressure, please refer to page 9 for the hand check procedure.**

### **ATS-004, ATS-005 & ATS-006**

Step 1 ▶ Same as above.  
For ATS-005 and ATS-006: The Low Pressure LED comes on.

#### **NOTE !**

**During normal operation, there may be a leakage when the Low Pressure LED comes on. Please refer to page 14 for troubleshooting.**

Step 2 ▶ Same as above.  
For ATS-005 and ATS-006: When the set level of pressure is reached, the Normal Pressure LED will come on, and the Low Pressure LED will turn off.

#### **NOTE !**

**If the Low Pressure LED doesn't go off, please contact local dealer or service center for examination.**

Step 3 ▶ Same as above.

Step 4 ▶ For ATS-004 and ATS-006, the static mode provides a stable surface that makes it easier for the patient to transfer or reposition.

#### **NOTE !**

**The static mode will keep the patient from bottoming out when the patient is in a sitting position.**



**Always read the operating instructions before use.**

### ***CPR function***

When there is an emergency to perform CPR on the patient, pull the CPR valves immediately to release the air quickly from the mattress. The CPR valves are located at the front right-hand side of the mattress.

### ***Pressure set up***

Users can adjust the pressure value of the air mattress to a desired firmness by themselves or according to the suggestion from a health care professional.

#### **NOTE !**

**It is recommended that the pressure-selector knob to be set to Firm for the initial inflation. Users can then easily adjust the pressure to a desired firmness according to the patient's weight and comfort.**

### ***Low pressure warning***

For ATS -005 / -006: When abnormal pressure occurs, the Low Pressure LED will come on. Check if the connections are secure and correctly installed according to the relevant instructions.

#### **NOTE !**

**If the pressure is consistently low, check for any leakage (tubes or connecting hoses). If necessary, contact your local dealer to replace any damaged tubes or hoses.**

# CLEANING

In this section, we describe the procedures to clean and decontaminate the unit. It is important to follow these procedures before using the system on patients.

## *Pump Unit*

- ▶ DO NOT immerse or soak the pump unit.
- ▶ Check for external damage and move the pump to the cleaning area.
- ▶ Place the pump on a work surface and spray or wipe the outside of the case with quaternary ammonium solution.
- ▶ DO NOT spray any cleaning solution directly on the surface of the pump.
- ▶ DO NOT use a Hypocarbonate or Phenolic based cleaning solution as this may cause damage to the case. Allow the solution to incubate for 10 minutes or accordingly as stated by the cleaning product used.
- ▶ Wipe case with a clean cloth. Make sure all areas are clean (top and bottom, both sides).
- ▶ Spray cloth with cleaning solution and clean faceplate. DO NOT allow excess cleaning solution on faceplate or control panel. (If solution gets inside, damage will occur.) Allow surface to thoroughly dry after cleaning.
- ▶ After the pump is thoroughly cleaned and dried, proceed to plug in the pump and test to see if it runs normally.
- ▶ Unplug the pump and store with proper identification tag.

## *Mattress System*

- ▶ Brush off or wipe down all surfaces of the cover sheet with soap and water before wetting with any liquid disinfectant.
- ▶ Any obvious blood spots should be wet thoroughly with 1:9 Hypochlorite solution (1 part bleach to 9 parts water) and allow drying for at least 10 minutes. Then blot with a clean, damp cloth.
- ▶ Unzip the top cover from the mattress.
- ▶ Brush or wipe down all surfaces with soap and water before applying any liquid.
- ▶ Covers are immersed and soaked in disinfectant for the required incubation time.
- ▶ After pre-soaking, the cover is rinsed through a regular cycle in a washer with no soap then laundered with mild detergent (wash temperature 93°F, rinse temperature 78°F or on the coldest setting).
- ▶ Covers are aerated until they are fully dry. (Drying temperature range 90-120°F or on the coldest setting.)
- ▶ The air cells are unsnapped from one side and are sprayed on all sides with a disinfectant. Let it sit for the required incubation time and wipe down with a clean cloth. (Make sure to disconnect all the air cells, one by one, and spray the disinfectant on all sides, including all the connecting tubes and hoses. Let it sit for at least 10 minutes.)
- ▶ If there is a base after you remove all the air cells, the base has to be sprayed down with the disinfectant, inside and outside. Let it sit for the required incubation time and wipe down with a cloth.
- ▶ Repeat the process with the tubing set: spray, incubate, and then wipe clean.
- ▶ The carrying bag should be turned inside out and completely wiped down using the disinfectant solution.
- ▶ Allow it to thoroughly air dry. Once the inside is dry, turn it back: wipe down the outside of the bag with disinfectant.
- ▶ Dry the mattress on a SUNLESS area after cleaning.

# HANDLING AND STORAGE

- ▶ Lay the mattress out flat and upside down.
- ▶ Roll from the foot end towards the head end; the foot-end strap can then be stretched around the rolled mattress to prevent unrolling.
- ▶ Do not fold, crease or stack the mattress.
- ▶ Follow the national requirement to dispose the pump unit.

# MAINTENANCE

## *General*

- ▶ Check the power cord and plug to see if there are abrasions or excessive wear.
- ▶ Check the mattress cover for signs of wear or damage. Ensure the mattress cover and tubes are connected together correctly.
- ▶ Plug in the pump unit and check the airflow from the hose connection port. The airflow should alternate between ports every half-cycle time.
- ▶ Check the air hoses to see if there are kinks or breaks. For replacement, please contact your local agent or dealer.
- ▶ Make sure the mattress tube is well connected.
- ▶ Check the pump unit and make sure both power and power indicator are off when the switch is turned off.

## *Low pressure*

Examine if there is air leakage between the pump and the mattress connections or from the air mattress tubes :


- ▶ Check connectors between the air mattress and pump. If there is any disconnection, please reconnect it.
- ▶ Check the CPR Valves. Ensure their outlets are sealed.
- ▶ Check the air-connecting tubes. Ensure each single cell is not broken.
- ▶ Set the pressure-selector knob to Firm position. Keep the tubes fully inflated and inspect for air leakage.
- ▶ Check if there is any air leakage from cells. Ensure no leakage occurs. If any leakage occurs, please contact your local agent or dealer.

# TROUBLESHOOTING

| Problems                               | Solutions   |
|--|---|
| The pump doesn't work                  | <ol style="list-style-type: none"> <li>1. Check if the plug is inserted firmly into the outlet.</li> <li>2. Turn on the power switch again.</li> </ol> <ul style="list-style-type: none"> <li>▶ If the power LED is ON and the pump still doesn't work, contact your local dealer immediately.</li> <li>▶ If the power LED is OFF, there may be a faulty outlet. Try to connect the power cord to another outlet. If the power LED is still OFF, contact a qualified electrician for main power check.</li> </ul> |
| Incomplete inflation<br>(Low Pressure) | <ol style="list-style-type: none"> <li>1. For a quick check, adjust the pressure to Firm position.</li> <li>2. Check to see if the tubes connected to the pump are twisted or there is any leakage occurring.</li> </ol> <ul style="list-style-type: none"> <li>▶ Always keep the tubes straight.</li> <li>▶ Change tubes if there is any leakage.</li> <li>▶ Ensure the CPR valves are closed. Ensure every single cell is not broken.</li> </ul>  |
| Slow air flow                          | <p>A dirty filter may decrease the air flow.<br/>Wash the filter with mild detergent to keep it clean.</p> <ul style="list-style-type: none"> <li>▶ Check the air filter at the back of the pump unit at least once a month.</li> </ul>   |

# SPECIFICATIONS

## *System*

| Item                     | Specifications   |
|--------------------------|--|
| Medical Equipment        | Class I; IPXO; AP/APG NO; Type BF   |
| Applied Part             | Mattress   |
| Power Supply             | AC 120V 60Hz; 12W, 1A<br>Or AC 100V 50/60Hz; 12W, 1A<br>Or AC 230V 50Hz; 12W, 1A   |
| Dimensions               | 26.0 × 13.0 × 8.0 cm (10.2 x 5.1 x 3.1 in)   |
| Weight                   | 1.5 kg (3.3 lbs)   |
| Environment Requirements | <ul style="list-style-type: none"> <li>▶ Temperature: Operation 50°F~95°F (10~35°C)<br/>Storage 59°F ~122°F (15~50°C)<br/>Shipping 59°F ~158°F (15~70°C)</li> <li>▶ Humidity: Operation 20%~80% non-condensing<br/>Storage 10%~90% non-condensing</li> </ul> |
| Safety Standards         | UL, c-UL, CE   |

\* Due to the continual development of the above products, specifications are subject to change without prior notice.

### **NOTE !**

The above specifications are also applicable to those areas operating with the same power supply range.

### **NOTE !**

All specifications are subject to change without notice.

## Pump Unit

| Series  | Function   | Specifications  |
|---------|--|---|
| ATS-000 | ON/OFF switch  | Power: 230V AC/50Hz, 120V AC/60Hz<br>Pressure: 90 mmHg<br>Cycle time: 6 min/50Hz, 5 min/60Hz      |
| ATS-001 | ON/OFF switch<br>Pressure-selector knob  | Power: 230V AC/50Hz, 120V AC/60Hz<br>Pressure: 40-90 mmHg<br>Cycle time: 6 min/50Hz, 5 min/60Hz   |
| ATS-004 | ON/OFF switch<br>Pressure-selector knob<br>Static function button  | Power: 230V AC/50Hz, 120V AC/60Hz<br>Pressure: 30-80 mmHg<br>Cycle time: 12 min/50Hz, 10 min/60Hz |
| ATS-005 | ON/OFF switch<br>Pressure-selector knob<br>Normal Pressure LED<br>Low Pressure LED                           | Power: 230V AC/50Hz, 120V AC/60Hz<br>Pressure: 30-80 mmHg<br>Cycle time: 12 min/50Hz, 10 min/60Hz |
| ATS-006 | ON/OFF switch<br>Pressure-selector knob<br>Normal Pressure LED<br>Low Pressure LED<br>Static function button | Power: 230V AC/50Hz, 120V AC/60Hz<br>Pressure: 30-80 mmHg<br>Cycle time: 12 min/50Hz, 10 min/60Hz |

## Bubble Pad or Mattress

| Model  | Arrangement   | Dimension         | Material  | Weight Support |
|--|---|-------------------|-----------|----------------|
| 250  | Bubble pad  | 198x89x6.3/1.8kg  | PVC       | 100 kg         |
| 250L   | Bubble pad w/low air loss                                   | 198x89x6.3/1.8kg  | PVC       | 100 kg         |
| 250E   | Bubble pad w/positioning extension                          | 198x89x6.3/2.2kg  | PVC       | 100 kg         |
| 250EL  | Bubble pad w/positioning extension & low air loss           | 198x89x6.3/2.2kg  | PVC       | 100 kg         |
| 252  | Two-layer bubble pad  | 198x89x12.6/3.6kg | PVC       | 100 kg         |
| 252L   | Two-layer bubble pad w/low air loss                         | 198x89x12.6/3.6kg | PVC       | 100 kg         |
| 252E   | Two-layer bubble pad w/positioning extension                | 198x89x12.6/3.6kg | PVC       | 100 kg         |
| 252EL  | Two-layer bubble pad w/positioning extension & low air loss | 198x89x12.6/3.6kg | PVC       | 100 kg         |
| 418E   | 4"x18 cells w/positioning extension                         | 189x80x10.0/4.3kg | Nylon/PVC | 120 kg         |
| 418EL  | 4"x18 cells w/positioning extension & low air loss          | 189x80x10.0/4.3kg | Nylon/PVC | 120 kg         |
| <b>Components: cover sheet (Nylon/PVC/TPU); base sheet (Nylon/PVC/TPU)</b> |   |                   |           |                |
| 516  | 5"x16 cells   | 189x90x12.7/4kg   | Nylon/PU  | 150 kg         |
| 516E   | 5"x16 cells w/positioning extension                         | 189x90x12.7/4.3kg | Nylon/PU  | 150 kg         |
| 516EL  | 5"x16 cells w/positioning extension & low air loss          | 189x90x12.7/4.3kg | Nylon/PU  | 150 kg         |
| <b>Components: cover sheet (Nylon/PU); base sheet (Nylon/PU)</b>           |   |                   |           |                |
| 517  | 5"x17 cells   | 200x90x12.7/4.2kg | Nylon/PU  | 150 kg         |
| 517E   | 5"x17 cells w/positioning extension                         | 200x90x12.7/4.5kg | Nylon/PU  | 150 kg         |
| 517EL  | 5"x17 cells w/positioning extension & low air loss          | 200x90x12.7/4.5kg | Nylon/PU  | 150 kg         |
| <b>Components: cover sheet (Nylon/PU); base sheet (Nylon/PU/PVC)</b>       |   |                   |           |                |