

# **SUMED<sup>®</sup>**

# **INTEGRITY<sup>®</sup>**

## User Manual

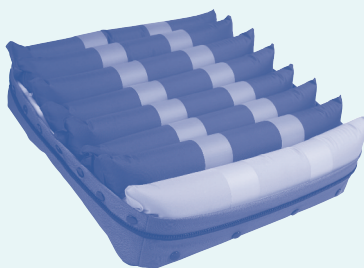
### **Alternating Pressure Mattress Systems**

- Standard
- Extra Long
- Extra Narrow
- HD



### **Alternating Pressure Cushion System**

- Standard



## General Safety

Before connecting the pump to a mains socket, carefully read all the installation instructions.

### Safety Criteria

This product conforms with the requirements of EN60601, EN60601-1, EN 60601-1-2.

### Safety Warnings

The product is only intended to be used as an aid to assist in healing and prevention of pressure ulcers and should be used in conjunction with a patient-specific care plan.

The Manufacturer cannot be held responsible for inappropriate or incorrect use.

- Do not tamper with the pump.
- The pump is not suitable for use in anaesthetic procedures involving inflammable gases.
- Do not pull the mattress CPR tag in normal working use except in an emergency situation or to deflate the system.
- Do not use sharp or pointed objects or subject the mattress or cushion to high temperatures.
- The cover of this product is vapour permeable but not water permeable and does present a suffocation risk. It is the responsibility of the user to ensure that this product can be used safely.
- Electrical equipment may be hazardous if misused. The pump should only be dismantled by authorised technical personnel.
- Do not use the pump in the presence of flammable gases such as anaesthetic gas or in places exposed to water, liquids, oil, smoke and flammable chemicals.
- Safety sides/bed rails should be used at an appropriate height based on clinical assessment and in line with local guidelines and/or risk assessments.
- Ensure that there are no gaps wide enough to entrap a patient's head or body between the system and the bed frame. Care should be exercised to prevent occurrence of gaps by compression or movement of the system as death or serious injury may occur.

### Precautions

For your own safety and the safety of the equipment, always take the following precautions:

- Apart from thin cover sheets, placing extra layers between the patient and the system reduces the benefits provided by the system. The mattress cover should not be pulled tight and covering sheets should fit loosely.
- It is advisable to avoid wearing clothing which may cause areas of localised high pressure due to creases, seams, or similar risks.
- Keep the pump away from liquids.
- Do not expose the system to naked flames or other heat sources.
- Do not store the system in direct sunlight.
- Disconnect the pump from the mains power supply before cleaning.
- Do not use phenol-based solutions to clean the system.
- Make sure the system is clean and dry prior to use or storage.
- Never use sharp objects or electrically heated under-blankets on or under the system.
- Store the pump and mattress/cushion in the protective bag supplied.
- Only the pump and mattress/cushion combination as supplied by Sumed® should be used. The correct function of the product cannot be guaranteed if any other Manufacturer's pump and mattress combination is used.
- Always observe specified working load range.

## About this manual

This manual is your introduction to Integrity® Auto Adjusting Full Dynamic Replacement Mattress and Cushion Systems. Use this manual initially to set up the system, and keep it as a reference for day-to-day routines and as a guide to maintenance.

## About Integrity

Integrity Auto Adjusting Full Dynamic Replacement Mattress and Cushion Systems are designed to assist in the prevention, treatment and management of pressure ulcers up to and including stage 4.

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# 1. Integrity Mattress Installation and Set Up

Integrity Alternating Pressure Mattress comprises a pump and mattress replacement system which can be used on standard hospital, profiling, auto regression and normal domestic beds with bed rails or sides. Beds can be adjusted or profiled with the Integrity mattress in position.

## Detachable Cover

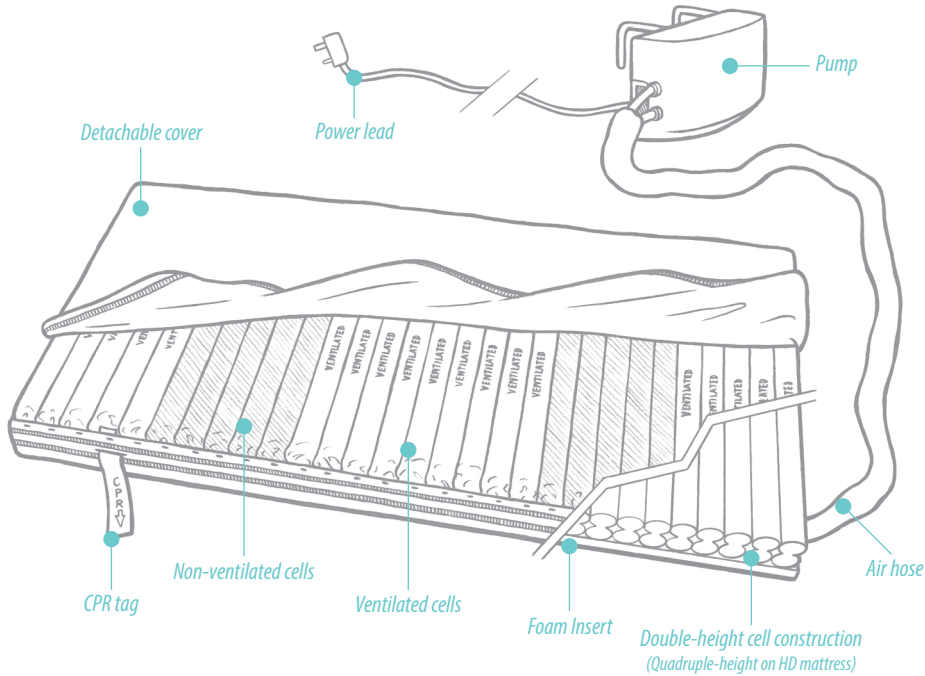
Integrity is supplied with a 2-way stretch cover zipped on 4 sides to a durable anti-slip base. The zips are protected by flaps to prevent ingress of fluid and allow easy removal of the cover for cleaning or replacement.

## Cells and Foam Base

Number of cells	Standard	Extra Long	Extra Narrow	HD
Foam base height	5cm	5cm	5cm	10cm
Ventilated cells*	19	19	19	13
Non-ventilated cells	10	14	13	8
Cell configuration	Double	Double	Double	Quadruple
<b>Total number of cells</b>	<b>29 x2</b>	<b>33 x2</b>	<b>32 x2</b>	<b>21 x4</b>
Working load:	Up to 178kg (28 stone)	Up to 178kg (28 stone)	Up to 178kg (28 stone)	127kg - 317kg (20 - 50 stone)

NB. The bottom row of cells (bottom 2 rows on HD) are static and non-ventilated for improved stability and to prevent bottoming out in the event of a power failure.

\* Ventilated micro low air loss cells are located at the head, foot and central areas and lose less than 10 litres per hour.



## Installation and Set Up

Remove the existing mattress from the bed frame.

**Step 1:** Ensure bed frame is free of sharp objects that could damage Integrity mattress system.

**Step 2:** Position mattress centrally on bed with air hoses at foot-end. Ensure there are no gaps that could cause entrapment. Use straps to secure mattress to fixed section of bed (straps must be attached to profiling sections on a profiling bed).

**Step 3:** Place pump in preferred position (adaptor bracket available for deep foot boards).

**Step 4:** Connect air hoses to air outlet of pump (only fit one way). Ensure CPR tag is closed.

**Step 5:** Connect power lead to pump and plug into power socket.

**Step 6:** Turn on main power switch located at side of pump. Orange indicator light will show, indicating system is in Standby mode. Press On/Standby button and green indicator light will show. Pump will start pumping air after a few seconds.

**Step 7:** Wait until inflation cycle has completed and pump has stabilised to its default settings (10 minute cycles on a medium comfort setting) before placing the patient on mattress. This should take approximately 20 minutes.

**Step 8:** User weight adjustment is AUTOMATIC. Adjust Comfort setting for user if required.

**WARNING!** Ensure mains power cord and air hoses are always positioned to avoid causing a hazard. Ensure mains power cord and air hoses are clear of any moving bed mechanisms or other possible entrapment areas.

## Transport Control (prevent deflation)

To prevent mattress deflation during transport, simply disconnect air hoses from pump and connect the male and female ends together.

## Deflation and Storage

1. Switch off pump and disconnect from mains power supply.
2. Disconnect air hoses from pump.
3. Pull CPR tag for fast deflation. *NB. CPR tag MUST be reconnected before resuming normal use.*
4. Ensure mattress is clean and dry before storing.
5. Once deflated, roll up the mattress starting at the head-end.

## CPR Control

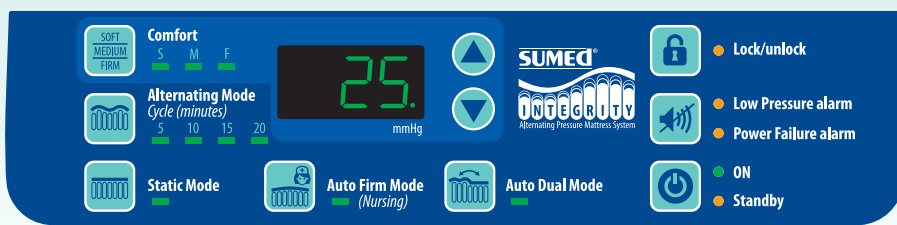
CPR (Cardio-Pulmonary Resuscitation) control is at head-end of mattress. It is identified by a clearly marked pull tag. This allows air to be evacuated in approximately 10 seconds.

**Emergency CPR Deflate:** With patient lying down, pull down hard on tag (pictured right) for quick deflation. Remember to replace CPR tag when resuming operation or unit will not inflate.



## 2. Integrity Mattress Pump

The controls and indicators are located on the top panel:



The pump can be fixed to the foot-end of the bed by the bed brackets provided (an adapter bracket is available for deeper foot boards). The pump can also be placed upright on the floor.



**ON/Standby:** When the green indicator is on, this means that the pump will start to operate.

When the orange indicator is on, this means that the unit is in Standby mode and will not operate. This can only be used in Unlock mode.



**Comfort:** Select the green indicators for a soft, medium or firm setting. The pump automatically adjusts and shifts to the most appropriate pressure depending on the selected setting. This function can be used to adjust the Comfort level around the preset levels for S (Soft), M (Medium) and F (Firm).



*In Alternating Mode:* Soft = 20mmHg, Medium = 30mmHg, and Firm = 40mmHg. The up and down arrow will allow for adjustment between 20-29 on the S setting, 30-39 on the M setting and 40-49 on the F setting. This adjustment can only be made in Unlock mode.



*In Static Mode:* Soft = 15mmHg, Medium = 20mmHg, and Firm = 25mmHg. The up and down arrow will allow for adjustment between 15-19 on the S setting, 20-24 on the M setting and 25-29 on the F setting. This adjustment can only be made in Unlock mode.



**Alternating Mode:** This feature allows the time cycle to be changed from its default cycle time of 10 minutes per cycle. Options include: 5, 10, 15 or 20 minutes per cycle. The green light indicates which cycle time has been selected.

- This feature allows temporary relief of pressure in conjunction with the selected time cycle. This in turn improves blood supply and assists in the healing and prevention of pressure ulcers. This can only be used in Unlock mode.



**Static Mode:** On this setting the system does not alternate. If the green indicator is on, this means that the Static Mode is activated.

- After 1 hour Integrity automatically reverts to the last comfort and cycle time setting in Alternating Mode. This can only be used in Unlock mode.



**Auto Firm (Nursing):** For providing nursing care, this function will ensure the mattress is pressurised to be flat and firm to provide a more stable surface to make nursing care easier. When the green indicator is on, the Auto Firm (Nursing) button is activated. However, after 30 minutes, the unit will resume its previous setting in order to protect the patient from the risk of developing pressure ulcers. This can be used in Lock or Unlock mode.



**Auto Dual Mode:** This enables a combination of pressure therapy. The function enables Alternating and Static Modes to alternate on one hour cycles. The mattress automatically adjusts to the set comfort level.

- As an example, if the Alternating Comfort setting is 27mmHg, this will adjust to a Static Mode setting of 18mmHg. If the Alternating Comfort setting is 38mmHg, this will adjust to a Static Mode setting of 24mmHg. This can only be used in Unlock mode.



**Low Pressure Alarm:** The alarm automatically sounds when low air pressure is detected in the mattress. The alarm can be muted by pressing the alarm button, the alarm light will continue to flash. In alternating mode, the alarm will resound when each cycle commences. In static mode it will resound after 10 minutes.

**Power Failure Alarm:** The alarm automatically sounds within 80 seconds when there is a loss of power during normal operation of the system.

- The indicators do not turn on during normal operation. However, when the orange indicators are on, it means that either the Low Pressure Alarm or the Power Failure Alarm has sounded. The alarm can be muted by pressing the Power Failure Alarm button. If a prolonged power failure occurs refer to initial set-up.



**Lock/Unlock:** This is used to prevent the user from accidentally changing the control panel settings. The button can lock the existing settings status. Press again to unlock.

- Please note the ON/Standby button will also be locked as an additional safety feature however the Auto Firm (Nursing) button cannot be locked.

**Display:** Where a dot appears after a reading, this means that the panel is unlocked to enable the system to be reset/adjusted. When there is no dot the reading is a display of the pressure being supplied to cells which are being inflated. This is an indication of the Comfort setting.



**NOTE!** The Standard Pump (REF 12345P) must **only** be used with Standard, Extra Long & Extra Narrow mattresses and is **not compatible** with the HD mattress. The HD Pump (REF 12345P2) is compatible with all Integrity mattresses (standard, Extra Long, Extra Narrow & HD). Integrity Cushion simple pump (34567P) is **not compatible** with any mattresses.

**USE WITH INTEGRITY ALTERNATING PRESSURE CUSHION!** Both Standard (REF 12345P) and HD (REF 12345P2) mattress pumps can be used with Integrity Alternating Pressure Cushion. All mattress pump modes will be available - care must be taken to ensure appropriate mode is selected.

### 3. Integrity Cushion Installation and Set Up

Integrity Alternating Pressure Cushion is available in two configurations:

- Cushion and pump: A complete system including our simple auto-adjusting pump (pictured opposite).
- Cushion only: Users who already have an Integrity Alternating Pressure Mattress system are able to use their existing mattress pump with an Integrity Alternating Pressure Cushion.

#### Detachable Cover

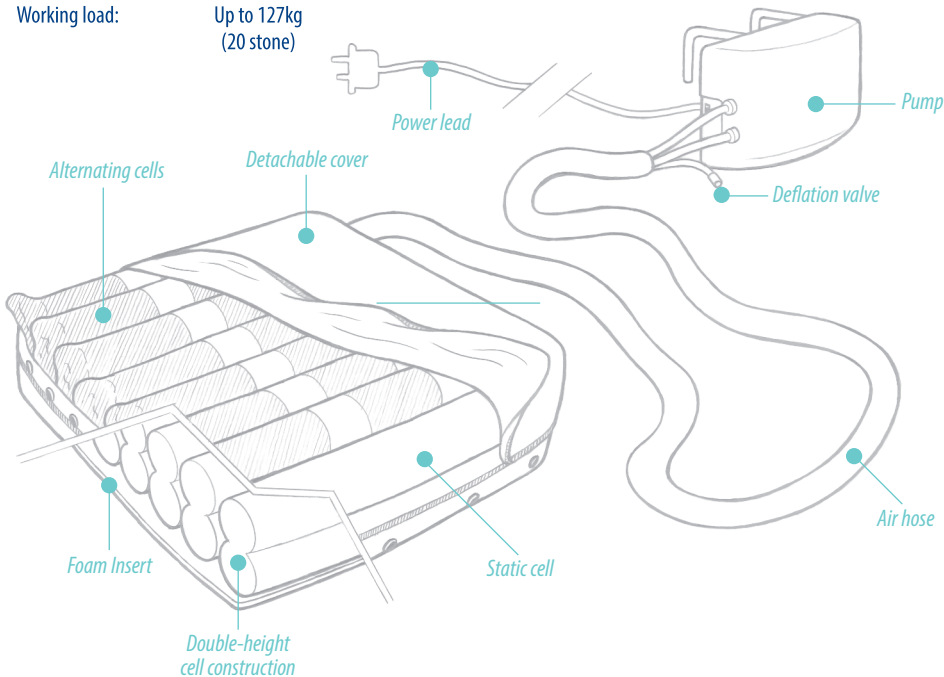
The standard protective cover is a 2-way stretch cover zipped on 4 sides to a durable anti-slip base. The zips are protected by flaps to prevent ingress of fluid and allow easy removal of the cover for cleaning or replacement.

#### Cells and Foam Base

Number of cells	Standard
Foam base height	2.5cm
Alternating cells	7
Static cells*	1
Cell configuration	Double

*\* Cell at front of cushion is static for improved stability.*

<b>Total number of cells</b>	<b>8 x2</b>
Working load:	Up to 127kg (20 stone)



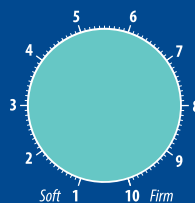


## Installation and Set Up



Integrity Alternating Pressure Cushion Pump  
with automatic pressure adjustment

Comfort  
Setting



**Step 1:** Ensure chair is free of sharp objects that could damage Integrity cushion system.

**Step 2:** Position cushion centrally on chair with air hoses to rear.

**Step 3:** Place pump in preferred position.

**Step 4:** Connect air hoses to pump (only fit one way). Ensure deflation valve is in closed position.

**Step 5:** Connect power lead to pump and plug into power socket.

**Step 6:** Set comfort dial on pump to 1 (soft).

**Step 7:** Turn on main power switch located at side of pump. Power switch will illuminate indicating system is on. Pump will begin pumping air after a few seconds.

**Step 8:** Allow to inflate (approximately 1 minute) before placing patient on cushion. *NB. Cushion will be firm until the next cycle begins. However, pressure can be manually adjusted using deflation valve.*

**Step 9:** Cushion AUTOMATICALLY adjusts for user weight as each cycle begins (every 10 minutes). Rotate comfort dial if firmer setting is required.

**NB.** If user moves from cushion, it will re-inflate to default firm state. When user returns, cushion will automatically adjust when next cycle begins (within 10 minutes) or pressure can be adjusted manually using deflation valve.

**NB.** Cushion will not deflate when disconnected from pump unless deflation valve is opened. There is no low pressure or power failure alarm for Integrity Cushion Pump.

**WARNING!** Ensure mains power cord and air hoses are always positioned to avoid causing a hazard. Ensure mains power cord and air hoses are clear of any chair mechanisms or other possible entrapment areas.

### Use with Integrity Mattress Pump

Alternatively, Integrity cushion can be used with Integrity Mattress Pump (REF 12345P) or Integrity Mattress HD Pump (REF 12345P2).

When mattress pump is connected and switched on it will default to medium comfort in alternating mode with a 10 minute cycle. Please refer to pages 6-7 for further information on Integrity mattress pumps.

### Deflation and Storage

1. Switch off pump and disconnect from mains power supply.
2. Disconnect air hoses from pump.
3. Open deflation valve to deflate cushion.  
*NB. Deflation valve must be closed before resuming normal use.*
4. Ensure cushion is clean and dry before storing.

## 4. Clinical Applications

### Indications

All Integrity mattresses and cushions are suitable for the prevention and management of all stages of pressure damage up to and including stage 4.

### Contra-Indications

- Integrity (both in Alternating and Static Modes) should not be used for users with unstable spinal fractures. In the case of users with other unstable fractures, where a moving surface can be harmful, advice should be obtained from an appropriate physician before use.
- Integrity is designed to assist in the healing and prevention of pressure ulcers. If there is no improvement in the user's condition, clinical advice should be sought.

The above are guidelines only and should not replace clinical judgement or professional experience.

## 5. Cleaning/Decontamination

It is recommended that, where practicable, all parts of the system (including mattress, cushion, top cover, pump and air hoses) should be cleaned weekly.

### Always refer to your Infection Control guidelines for advice.

**WARNING!** Remove electrical supply to pump by disconnecting mains power cord from mains power supply before cleaning. Protective clothing should always be worn when carrying out decontamination procedures. DO NOT immerse electrical parts in water during cleaning process.

### Suggested cleaning materials

- Neutral detergents or neutral detergents combined with disinfectants.
- Alcohol disinfectant wipes.
- Mild soap and water (mattress assembly only).

### Method

1. Dampen or rinse a clean cloth in cleaning solution and remove excess fluid.
2. Wipe clean all external cover surfaces. Dry before replacing mattress in position. For greasy or stubborn soiling use a non-abrasive cloth.
3. A clean cloth should be used with each application. Each application of solution should be made in accordance with Manufacturer's instructions. Rinse after application with clean water using a clean cloth.
4. If a combined detergent and disinfection solution is used, rinse after application with clean water using a clean cloth.
5. Allow to dry.
6. Wipe all surfaces with alcohol disinfectant wipe.

### To launder top cover

1. To achieve thermal disinfection, temperature in washing cycle of laundering process must be maintained at:
  - 71°C for a minimum of 3 minutes, or
  - 65°C for a minimum of 10 minutes.

This data is based on the United Kingdom Health Service Guideline HSG (95)18.

2. Tumble dry up to 85°C or air dry.

## 6. Routine Maintenance

The equipment has been designed to be virtually maintenance-free between service periods.

### Service manuals

Component parts lists and other information necessary for Integrity trained personnel to repair the system are available from Sumed® on request.

### Service period

Recommended service interval for pump is 12 months. Use a Sumed® authorised service agent.

### Integrity pump

Check all electrical connections and mains power cord for signs of excessive wear. If pump is subjected to abnormal treatment, e.g. immersed in water or dropped, return unit to authorised service centre.

### Integrity mattress/cushion

General Care: Check for signs of wear and tear or other damage. If in doubt contact your supplier.

### Serial numbers

*Pump:* See label on back of pump. *Mattress/cushion:* LOT number allows Manufacturer to determine date of manufacture.

## 7. Troubleshooting

### Pump does not operate:

Check both ends of power cord are connected and that main pump power switch is on.

### Pump is working but cells are not inflating:

- Mattress: Check and reconnect CPR tag.
- Cushion: Check deflation valve is closed.
- Check that the pipes are connected to the pump.

If problem persists, please contact your supplier.

## 8. Warranty and Service

In the event of a problem you must first contact your supplier. The Manufacturer, Sumed®, recommends that this product is serviced annually.

This product carries a Manufacturer's warranty period for the pump and the air mattress of 2 years against manufacturing defects. The Manufacturer's warranty will be invalidated if the tamper-evident seal on the pump has been broken.

For after sales service, maintenance and any questions regarding this, or any other Sumed® product, please contact:

**Sumed International (UK) Limited**  
**Integrity House, Units 1-2 Graphite Way,**  
**Hadfield, Glossop, Derbyshire SK13 1QH**  
**Telephone 01457 890980 Fax 01457 890990**  
**Website: [www.sumed.co.uk](http://www.sumed.co.uk)**  
**E-mail: [sales@sumed.co.uk](mailto:sales@sumed.co.uk)**

## 9. Technical Specifications

### Pump Specification:

- Input: 220-240V AC, 50Hz
- Power consumption: 10W max
- Fuse rating: T1AL/250V
- Weight: 2kg
- Dimension: L26cm x W8cm x H13cm
- Noise level should be less than 30dB

### UK and Euro Electrical Safety Standards:

- Complies with: EN 60601-1:1990/A13:1996
- Protection against electric shock: Class I, Type BF
- Protection against water ingress: IPX0
- Mode of operation: Continuous

### Environmental Protection:

- Please dispose of this unit in accordance with local regulations.

### Retardancy:

- Complies with BS7177 crib 5, BS597-1, BS597-2

## 10. Dimensions and Ordering Codes

### Integrity Alternating Pressure Mattress System

<b>Integrity Mattress Specification:</b>	<b>Standard</b>	<b>Extra Long</b>	<b>Extra Narrow</b>	<b>HD</b>
Dimension approx LxWxH (cm):	196x86x15	220x86x15	216x79x15	195x120x30
Working load:	Up to 178kg (28 stone)	Up to 178kg (28 stone)	Up to 178kg (28 stone)	127kg - 317kg (20 - 50 stone)
Weight of mattress (excl pump):	12.4kg	13.8kg	13.0kg	23kg
Weight of pump:	2kg	2kg	2kg	2kg
Weight of bag:	4.1kg	4.1kg	4.1kg	-
<b>Accessories/Spare Part Numbers:</b>	<b>Standard</b>	<b>Extra Long</b>	<b>Extra Narrow</b>	<b>HD</b>
Detachable mattress 2-way stretch cover:	12345C	12345XLC	12345ENC	12345BARIC
Mattress system complete:	12345	12345XL	12345EN	12345BARI
Mattress only (no pump):	12345M	12345XLM	12345ENM	12345BARIM
Mattress system pump:	12345P	12345P	12345P	12345P2
Extra deep pump bracket	12345EWPB	12345EWPB	12345EWPB	12345EWPB
Carry bag:	12345B	12345B	12345B	-
Power lead (3.5m):	12345PL	12345PL	12345PL	12345PL
Power lead (5m):	12345PL5M	12345PL5M	12345PL5M	12345PL5M

### Integrity Alternating Pressure Cushion System

<b>Integrity Cushion Specification:</b>	<b>Standard</b>
Dimension approx LxWxH (cm):	48x48x16
Working load:	Up to 127kg (20 stone)
Weight of cushion (excl pump):	2kg
Weight of pump:	2kg
<b>Accessories/Spare Part Numbers:</b>	<b>Standard</b>
Detachable cushion 2-way stretch cover:	34567C
Cushion system (with simple pump):	34567
Cushion only (no pump):	34567NP
Cushion simple pump:	34567P
Power lead (3.5m):	12345PL
Power lead (5m):	12345PL5M