

## Non-Powered Comfortex® Rest-Q GS® mattress vs Mechanically Powered Air Mattresses

### So Very Similar...So Very Different

**Air Mattresses** use pumps, compressors and electrical power to push air into receiving/storage chambers/pillows. These pillows are usually constructed of a vinyl or a coated nylon fabric. The downward pressure from a resting person, and their unique shape and weight, triggers the system to adjust with a release or relocation of the air from one chamber to another.

Properly set, the pump will adjust the system's air pressure to maximize immersion and pressure redistribution. Changes in bed and/or patient positions trigger the sensors and pumps to release from, or add air into, the pillows until the set level of pressure redistribution is restored. This process of inflation and deflation is ongoing and is why these designs are termed, a **dynamic or active system**.

**A Rest-Q mattress'** internal core has been engineered with multiple layers and multiple zones of HR (High Resiliency), High Specification, polyurethane foams of various firmnesses. These HR foams have a thicker, stronger, more resilient cell structure than conventional foams. Unlike Memory foams, which are closed-celled and tend to retain heat, the Rest-Q's open-celled HR Material provides billions of cells, all filled with air, which, like in the mechanical systems, moves, relocates or discharges the air and heat with each patient's weight, shape and movements.

Overall pressure redistribution is enhanced within the Rest-Q with pressure-relief zones positioned to underlie the more pronounced and at-risk areas of a patient's body, (spine, sacrum & heels). Pressure is off-loaded away from the at-risk points, which are suspended into the air filled cell structures of very soft HR foams. This balance of immersion, overall pressure redistribution, high-risk area off-loading and bony prominence absorption is achieved by design, not mechanized activity. The non-mechanical nature and highly specific materials of the Rest-Q's design define it as an **Advanced Static, Passive or a High Specification mattress**.

Rather than pumps, sensor and/or timers, (as with alternating air), the Rest-Q uses a blend of soft and supportive foams, multiple layers and pressure-point absorbing zones to support or surrender in response to the patient's shape, weight and movements. Immersion and pressure redistribution have been engineered into the design. During product development the foams' firmness's and their placements within the mattress are guided by numerous tests, including the computerized body-mapping tools used in this report.

**Mattress Covers** of most powered air surfaces and the non-powered Rest-Q Series mattresses are very similar. Both use a Shear Reducing nylon, which is sewn to provide a flowing, billowy covering that allows a patient's unique shape and weight to descend into the surface without the resistance of a taught or abrasive fabric.

**Both Designs Work.**

**Perhaps The Biggest Difference ...Cost.**

The following Interface Pressure Images and Readings compare a new Comfortex Rest-Q GS and a Low Airloss/APP mattress. This comparison was completed at the request of a major Medical Center.

Each mattress was placed on a Hospital bed to facilitate adjustments in resting positions. Three test subjects of differing weights, (approximately 120, 180 and 300 lbs.), rested on each surface for the interface pressure testing. Each subject began in the lying flat supine position, then the HOB was elevated to 30° and 45°.

The low Airloss mattress' compressor was set at Low Airloss and also set to the subjects' body weights.

#### **Pressure Redistribution:**

Each of the three surfaces performed well, with very similar redistribution results. Neither surface reflected pressures that would be deemed unsafe.

The Low Airloss mattress has a series of air pillows positioned vertically. The pressure readings varied, depending upon whether a prominence, such as a heel, happened to be resting on top of, rather than between the air-filled chambers. (No effort was made to reposition prominences to increase or reduce the pressures recorded).

The Rest-Q GS mattress tested was new. A used Rest-Q GS mattress will have a softer feel and can show slightly lower interface pressures than the un-used version. This is to be expected because the cells in High Resiliency foam within a new mattress are pristine and slightly firmer. Foams naturally settle into their intended support factors after several compressions.

#### **Utilizing the bed's Knee Gatch function:**

Raising the Knees not only helped keep the subjects from sliding down in bed, it had a pressure reducing effect under the subjects' heels. The Knee Gatch was elevated when the HOB was elevated during each test & recording.

#### **Subjective Comments:**

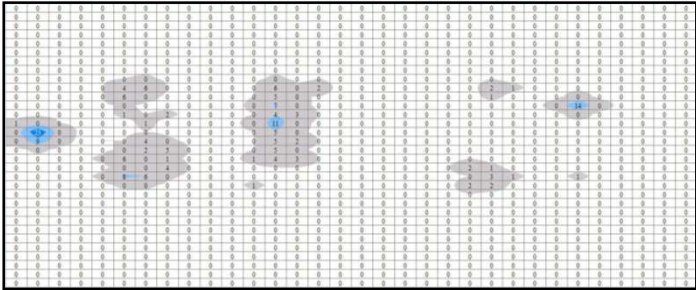
*The support felt by subjects was constant on the Rest-Q GS mattress despite subject movements. The support felt on the air-powered system stabilized after the Air Mattress adjusted to subject's movements or bed position changes. Subjects all commented on the frequency of, and the sounds made during air adjustments.*

*All subjects found each surface to be comfortable. **The Low Airloss mattress** was reported to feel softer, after it had adjusted to the subject's shape and movements. **The Rest-Q** was reported to feel more supportive, easier to enter and exit, and easier on which to reposition.*

Comparative Testing Completed : Oct. 2017

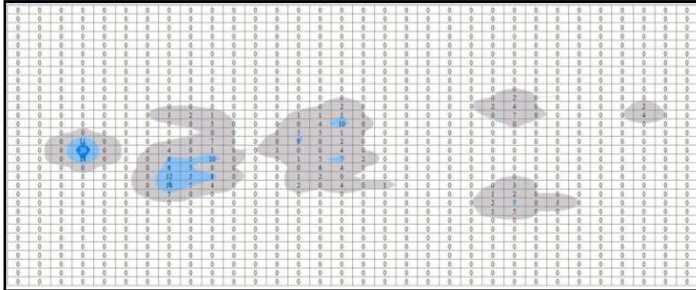
120 lbs. Subject

Rest-Q GS Flat position



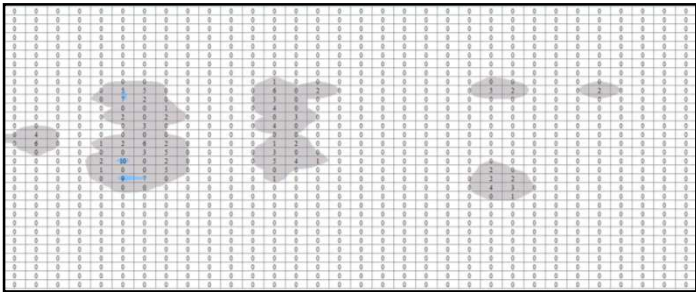
Peak Pressure    Shoulder Area    Sacral Area    Heels  
8 mmHg            11 mmHg            14 mmHg

Low Airloss Flat position



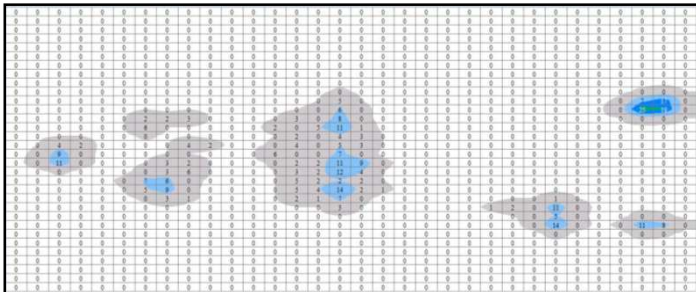
Shoulder Area    Sacral Area    Heels  
14 mmHg            10 mmHg            4 mmHg

Rest-Q GS HOB 30



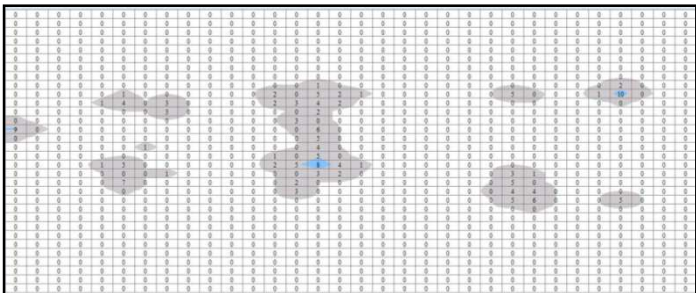
Peak Pressure    Shoulder Area    Sacral Area    Heels  
10 mmHg            4 mmHg            2 mmHg

Low Airloss HOB 30



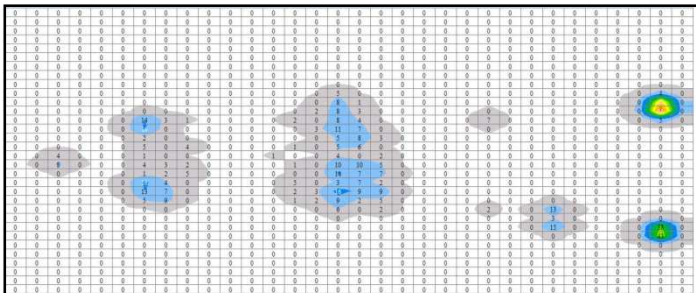
Shoulder Area    Sacral Area    Heels  
9 mmHg            14 mmHg            25 mmHg

Rest-Q GS HOB 45



Peak Pressure    Shoulder Area    Sacral Area    Heels  
7 mmHg            8 mmHg            10 mmHg

Low Airloss HOB 45

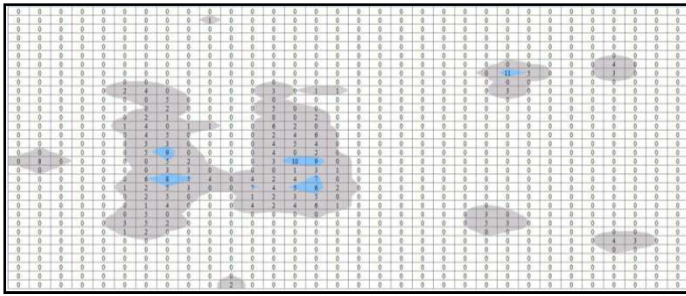


Shoulder Area    Sacral Area    Heels  
16 mmHg            16 mmHg            66 mmHg



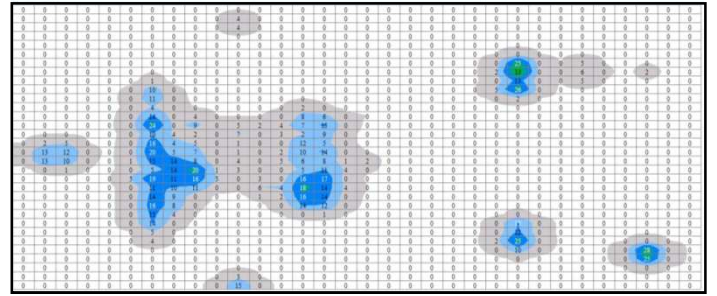
# 180 lbs. Subject

## Rest-Q GS Flat position



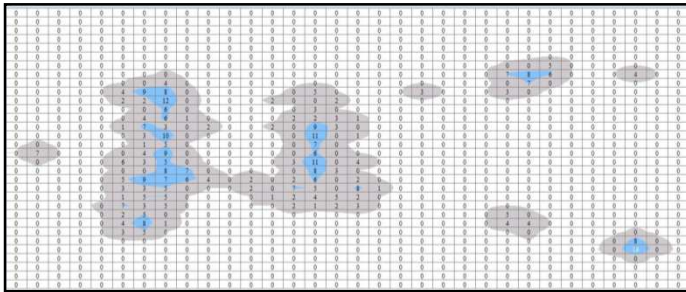
Peak Pressure    Shoulder Area    Sacral Area    Heels  
9 mmHg    10 mmHg    4 mmHg

## Low Airloss Flat position



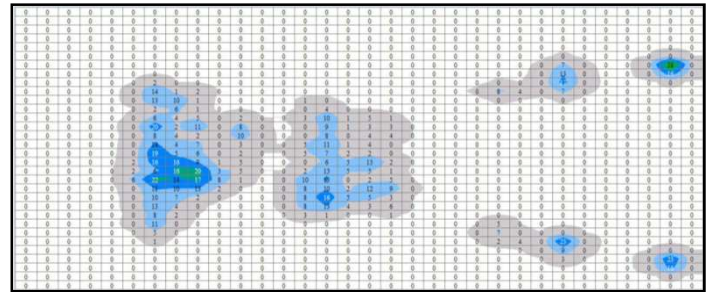
Shoulder Area    Sacral Area    Heels  
24 mmHg    18 mmHg    28 mmHg

## Rest-Q GS HOB 30



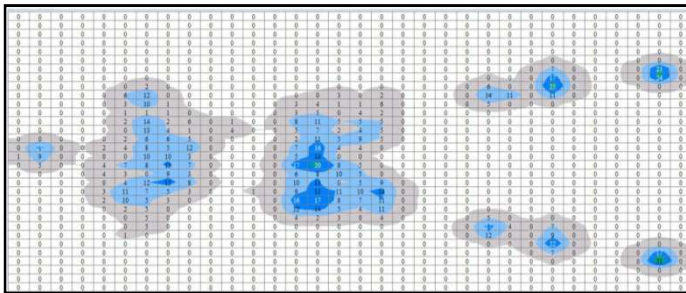
Peak Pressure    Shoulder Area    Sacral Area    Heels  
12 mmHg    11 mmHg    16 mmHg

## Low Airloss HOB 30



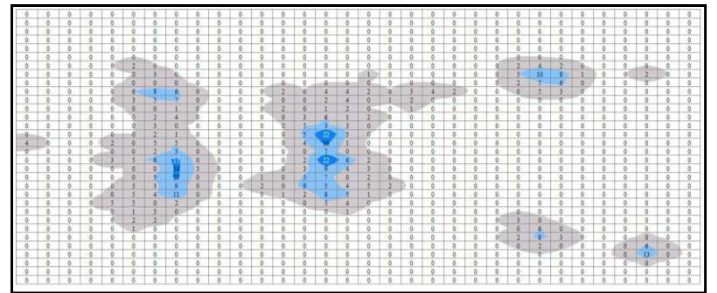
Shoulder Area    Sacral Area    Heels  
22 mmHg    16 mmHg    38 mmHg

## Rest-Q GS HOB 45



Peak Pressure    Shoulder Area    Sacral Area    Heels  
15 mmHg    20 mmHg    31 mmHg

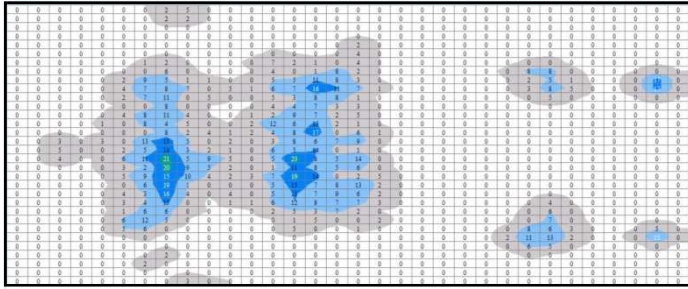
## Low Airloss HOB 45



Shoulder Area    Sacral Area    Heels  
15 mmHg    22 mmHg    13 mmHg

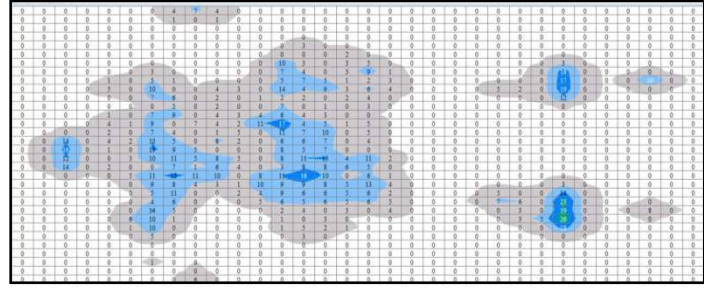
## 290 lbs. Subject

### Rest-Q GS Flat position



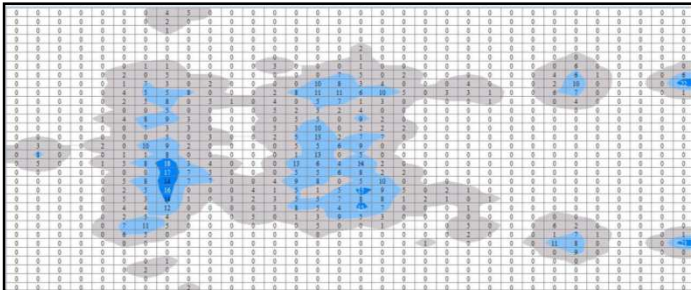
**Peak Pressure** 21 mmHg  
**Shoulder Area** 23 mmHg  
**Sacral Area** 17 mmHg  
**Heels** 17 mmHg

### Low Airloss Flat position



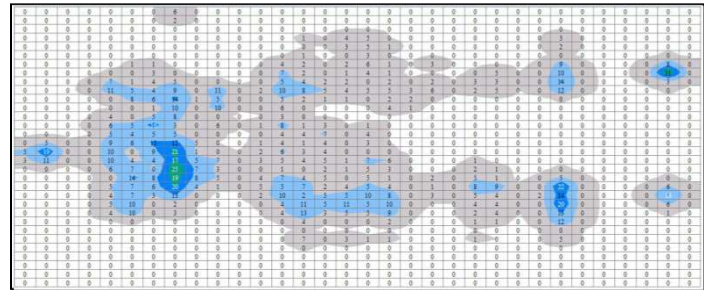
**Shoulder Area** 13 mmHg  
**Sacral Area** 17 mmHg  
**Heels** 16 mmHg

### Rest-Q GS HOB 30



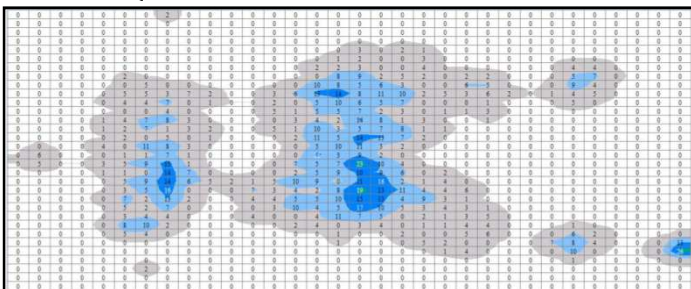
**Peak Pressure** 18 mmHg  
**Shoulder Area** 15 mmHg  
**Hip Area** 23 mmHg  
**Heel Area** 23 mmHg

### Low Airloss HOB 30



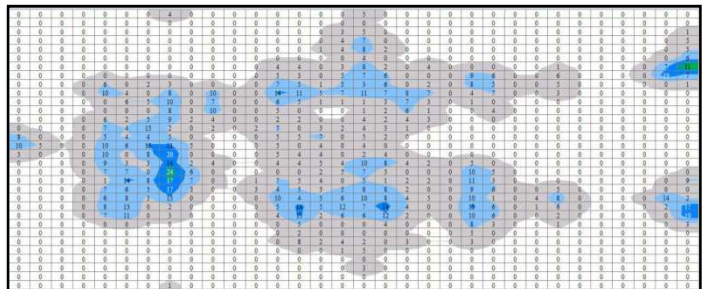
**Shoulder Area** 25 mmHg  
**Hip Area** 11 mmHg  
**Heel Area** 31 mmHg

### Rest-Q GS HOB 45



**Peak Pressure** 16 mmHg  
**Shoulder Area** 23 mmHg  
**Hip Area** 26 mmHg  
**Heel Area** 26 mmHg

### Low Airloss HOB 45



**Shoulder Area** 31 mmHg  
**Hip Area** 24 mmHg  
**Heel Area** 14 mmHg