



The next generation of care

diamond
mattress replacement system



Squirrel Medical working in partnership with Renray Healthcare

the next generation of care

Best possible pressure area care

The introduction of Stacked cell technology with smaller narrower cells delivers excellent pressure relieving properties, greater comfort, reduced surface movement and greater independent user mobility.

No side rail height extensions needed

Squirrel has re-evaluated mattress design and construction developing a new patented approach to achieve a 12.5cm ultra low profile mattress that ensures compliance with IEC 60601-2-52 without the need for side rail height extensions.

diamond



The Diamond is a dynamic mattress replacement system, providing the highest level of care and comfort.

Key features

- 12.5cm ultra-low profile, does not need side rail height extensions
- Stacked cell technology, giving the best possible pressure area care
- Whisper quiet pump for tranquil bedrooms

No side rails height extensions required

IEC 60601-2-52: 2010

The latest Medical bed standard revised many aspects of how medical beds are designed. One important aspect highlighted in the standard is that Side Rails should provide a minimum 22cm of protection above the mattress.

Most beds are designed to take a 125mm or 150mm deep foam mattress. Most dynamic mattresses are much deeper and reduce the protection offered by the side rails.

At only 125mm the Squirrel Diamond is an ultra-low profile dynamic system that ensures compliance with IEC 60601-2-52

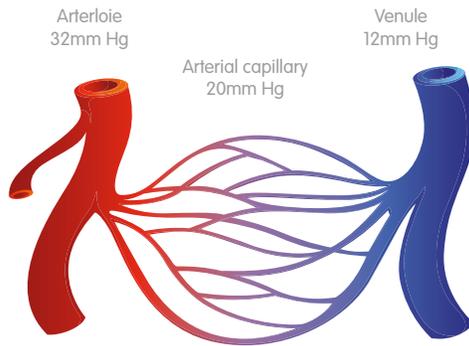
without the need for side rail height extensions.

Side rails should provide a minimum 22cm of protection above the mattress.

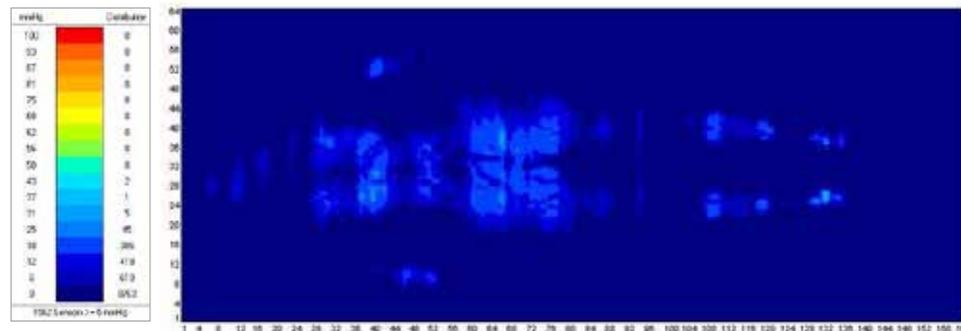


What is a safe pressure?

Pressure in different parts of the circulatory system varies. The accepted threshold for pressure mapping is 32mmHg but pressures as low as 12mmHg can cause problems and it is important to view performance over a broader range of pressure thresholds.



Thresholds for testing
Pressure is measured in Hg (Mercury).



Diamond interface pressure map

The best possible pressure area care

The Diamond at only 12.5cm deep shows comparable pressure mapping to traditional deeper mattresses. In addition it provides greater comfort, an improved surface for therapy and greater independent user mobility.

The Diamond “Ventilated Stacked Cell Technology” with smaller cells and integrated memory foam base-layer reduces shear and friction especially when the mattress is profiled.

The narrow cells provide better support and improved profiling compared to deeper systems with wider cells.

Diamond MRS – Interface Pressure Mapping

Tested with a 55kg/160cm female subject:
99% < 32mmHg
96% < 20mmHg
72% < 12mmHg



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Whisper quiet pump

Noise generated by mattress pumps is intrusive and disturbing to users, affecting interaction with carers; reducing enjoyment from activities such as reading or watching television. More importantly this continuous background noise can result in disrupted sleep patterns and significant health issues.

The Squirrel "Whisper Quiet" pump reduces noise significantly and is effectively silent in use.

(Below) Diamond Ultra-Low Profile Dynamic Hybrid Alternating Air Mattress



Falls Reduction

While the prevention of pressure ulcers is the primary function of dynamic air mattresses, most have the non-intended consequence of increasing the probability of user falls.

This is due to a number of factors including the surface being too soft reducing user mobility, the mattress being too deep reducing the protection offered by the side rails and the “Water Fall Effect” at the side of the mattress when a user tries to exit the bed.

The Diamond with its ultra-Low profile and firmer surface improves user mobility both in bed and while egressing via a “Sit to Stand” procedure or Wheel Chair Transfer and ensures the side rails offer the required 22cm of protection; reducing the risk of user falls from bed.

Comfort

Many alternating air mattresses are too soft for genuine comfort and the high degree of cell movement can sometimes cause users to feel nauseous.

The Diamond’s ventilated Stacked-cell technology provides a cooling surface with minimal cell movement. This ensures that the user does not overheat and eliminates “Sea Sickness” often reported by users of other systems.

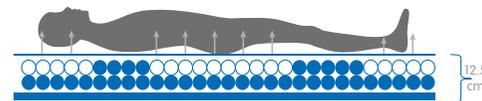
The Technology

The Diamond mattress has 58 cells in two independent layers. The lower cells provide a static, continuous level of support with a selectable 10 stage comfort range (30-60mmHg).

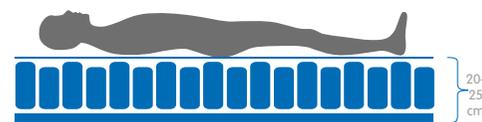
This lower layer distributes load applied through the upper tier, reducing high pressure points, which can occur with some deep cell systems.

The five cells at the head of the upper tier are static. The remaining upper cells have a “1 in 2” alternating sequence with each cell deflating then re-inflating before the next cell deflates.

In normal operation this sequence is repeated every 10 minutes, mimicking the micro-movement seen in healthy individuals. The alternating interval can be increased to 15, 20 or 25 minute intervals which is useful in “Step-down” therapy.



Diamond stacked cell technology.



Conventional deep cell mattress.

The foam base-layer provides additional pressure distribution and along with a tough non-slip base ensures that the cells are protected from damage and prevents ‘pinching’ of the cells when the mattress is used on profiling beds.

The upper tier has zones of specialist “Micro-Ventilated” cells positioned in areas associated with increased risk of pressure damage, such as the sacrum.

These cells have laser-cut perforations, which provide ‘Micro Low Air Loss’ (MLAL), reducing heat and moisture build-up in these vulnerable areas.

When a more stable surface is required for clinical examinations or procedures, engaging “Static Mode” halts cell alternation and cells are inflated to the Comfort setting

pressure. The “Auto-Firm” mode halts alternation and inflates all cells to their maximum. In both cases the mattress will return to its alternating mode automatically after a 20-minute delay.



Whisper quiet pump

The pump has a smooth easy to clean case and control panel, which includes easy to understand controls for, Therapy modes, 10 stage comfort setting, visible alarms and alarm mute. There is also a "Panel Lock" to prevent accidental changes to the settings.

The pump has two sets of hooks that allow it to be fitted to most bed types.

Hose set and CPR

The enclosed mattress hose set is fitted with a "Turn and Click" locking mechanism to prevent accidental removal and a manually operated CPR with high visibility pull tag.



Quick connector with lock.



Easy clean pump.



Small hooks.



Large hook.

Removable cover

The Diamond has a removable "Zip-off" top cover manufactured from soft, two-way stretch, PU material with a protected full length zip, allowing easy inspection. The inner surface is a powder white colour so any leakage or strike through is clearly visible. The two-way stretch material ensures that pressure peaks due to "hammocking" are eliminated.

The "Zip-off" cover protects the upper surface of the mattress core and can be laundered between users, improving infection control and reducing lifetime costs.

The tough water-proof, non-slip base encloses and protects the sides and underside of the core.

Product Code	Standard DIA090200	Extra long DIA090220	Extra wide DIA120200
Length	1980mm	2180mm	1980mm
Width	880mm	880mm	1180mm
Depth	125mm	125mm	125mm
Total Number of cells	58	66	58
Number Ventilated cells	19	11	19
Number of Static cells at head	5	5	5
Cell alternation pattern	1 in 2 with selectable 10, 15, 20 or 25 min cycle time		
Sub-cell Foam	3cm Visco-Elastic base layer		
Max. user weight	243kg	243kg	243kg
Min. user weight	50kg	50kg	50kg
Mattress weight	9kg	10kg	12kg
Pump weight	3.5kg	3.5kg	3.5kg
CPR	Manual		
Risk Factor	High to Very High		
Warranty	2 years parts and labour		
Pump Noise level	<30db at 1m		
Mattress only code	DIA301	DIA306	DIA304



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