

Airpulse PK™

Powered Wheelchair Cushion System

Case Samples

Every Airpulse PK cushion system is custom made to address the end-user's physical characteristics and health needs to maximize effectiveness.

Case #1 Current Pressure Sore

Situation: A new potential Aquila client had a pressure sore on the left ischial area that was getting progressively worse. The client had been using his current cushion for several years without a problem but the cushion seemed to no longer be effective at preventing pressure sores even though he was cutting back on sitting time. The client is a quadriplegic with no feeling sensation in the posterior area and is high risk for pressure sores. His current sore had progressed to a Stage IV.

Solution: The client ordered a new Airpulse PK cushion system and the cushion was designed with the quick-disconnect (QD) feature built in to both of the cushion's ischial air cells. The QD for the left ischial cell was disconnected so it would not inflate and applied near zero upward pressure under the existing sore.

Result: The client was able to increase his sitting time from 2 days a week to five and the duration from two hours to six hours per day. The pressure sore healed in less than two months. (The QD feature can be added to any of the cells in the cushion to address pressure sore situations throughout the posterior area).

Case #2 Bariatric Seating Situation

Situation: A new client weighs over 420 lbs. and uses a wheelchair 100% of the time for mobility. The client was having no luck in finding a cushion that would support his weight and provide adequate circulation.

Solution: Aquila designed an Airpulse PK seating system that had a cushion measuring 26" x 24". The controller was specially designed with a customized pump and the microprocessor in the controller was programmed to enable the cushion to reach the proper PSI for maximum effectiveness at relieving pressure and stimulating circulation. A remote control was also installed so the client could easily operate the system without having to reach for the main controller which was going to be difficult for him.

Result: The client was able to sit longer on a cushion that fit properly rather than making do with an off-the-shelf cushion option. (The Airpulse PK cushion system has no size or weight limits).

Case #3 Severe Lean

Situation: A client has scoliosis with a severe lean to the left that is getting progressively worse over time. This lean is causing additional pressure to the left side and creating periodic pressure sore issues.

Solution: Aquila custom made the Airpulse PK with firmer foam inserts inside five of the air cells along the left side of the cushion. Aquila also provided an additional positioning cushion that was made to be placed inside the cushion cover but under the cushion itself. This positioning cushion is 8" wide and is placed along the left side of the cushion from the front to the back. The positioning cushion can be inflated with a hand bulb to provide additional lift to the left side up to 2".

Result: The client now gets more lift to the left side to compensate for the pelvic obliquity, with a more balanced sitting posture. The alternating pressure of the Airpulse PK coupled with the improved sitting posture helps prevent pressure sore problems to the entire posterior area and in particular to the client's left side.

See more case samples on the back.

AQUILA CORPORATION
Customized Seating Solutions

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Case #4 Frequent Automobile Travel & Excessive Sweating

Situation: The client lives in the southwestern U.S. and frequently travels long distances by automobile. The client had a static air cushion, but the air pressure or firmness of the cushion changed when the altitude changed and he also experiences a bottoming out on bumpy roads. The client had limited sensation so he couldn't always tell if he was bottoming out. Making matters worse, the client easily sweats creating a moisture problem in his posterior area after sitting in the car for long periods of time.

Solution: The client orders an Airpulse PK powered, alternating pressure cushion system. The microprocessor in the controller of the Airpulse PK constantly monitors sitting pressure and automatically makes pumping adjustments for atmospheric pressure changes to maintain proper inflation levels. The Airpulse PK eliminates the altitude/air pressure problem. The client also could now change the firmness setting with the touch of a button so the cushion could be slightly firmer when traveling by automobile. This helped to eliminate bottoming out on bumpy roads. A Moisture Control Unit (MCU) was also added to the seating system. The MCU is a fan that is contained in a pouch that in turn attaches to the front of the cushion. The fan pushes air through the cells of the cushion and the air flow then permeates upward through the breathable cover to help keep the skin cool and dry.

Result: Adjustments for air pressure due to altitude changes are made by the system automatically so the client does not have to constantly check inflation levels and the MCU provides moisture relief associated from the constant sweating. The client now travels more comfortably without the inconvenience of constantly checking air pressure for proper inflation levels and without the risk of pressure sores from bottoming out.

Case #5 Pressure Ulcer heals during the day, degrades at night

Situation: A client is a 28 year old veteran and received an Airpulse PK wheelchair cushion system that was purchased for him by his local VA medical center. The client is a quadriplegic due to injuries suffered in war and was unable to sit in a wheelchair because of an existing pressure ulcer and fear of additional skin breakdown. After he received his customized Airpulse PK system he was able to sit for nine hours per day when previously confined to his bed. However, while the pressure ulcer showed signs of healing during the day, it was worse in the morning after sleeping, even though he was using a low air loss mattress.

Solution: The VA medical center ordered a custom made mattress for the veteran from Aquila. The custom mattress, powered by an Airpulse PK controller, has a combination of both static air bladders and alternating inflation/deflation bladders. The alternating pressure air bladders were designed to be located under the pelvic area, the location of the existing pressure ulcer. The static air bladders supply good pressure distribution and the dynamic alternating bladders under the pelvis provide additional pressure relief and stimulation to the tissue. Further customization was added by placing the quick-disconnect (QD) feature to the air cells located immediately under the client's existing pressure ulcer. These cells are now able to be disconnected from inflation providing near zero upward pressure to this area of the skin while the client is sleeping.

Result: The client reports this to be the most comfortable mattress he has ever used and the sore has healed with no further problems related to pressure when either in bed or spending time in his wheelchair.

Case #6 Replacement Needed for Complete System Damage

Situation: A current client had a customized Airpulse PK system for her chair that allowed her to attend a camp for the entire summer. An accident happened while at camp and the wheelchair along with the Airpulse PK system ended up at the bottom of the lake. While the wheelchair was retrieved, the Airpulse PK system had been permanently damaged. Without the Airpulse PK seating system, the client needed to cut the camping trip short.

Solution: Aquila maintains a complete file on every client. This file includes the original order forms, client contact information, client health and seating information, the specifications and photographs of all seating equipment made by Aquila, and a customer call log and history log containing all communication and activity history with the client, caregiver, clinician and dealer. Because of the information in this file, Aquila was able to custom build an exact replacement Airpulse PK cushion system, expedite production, and drop ship the new replacement right to the end-user at the camp.

Result: The client was able to continue spending the planned time at the summer camp without the worry of skin breakdown.

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