

## VIP 2 Clinical Justification

### Caregiving

Addressing the challenges of daily hygiene and clinical monitoring, the VIP2 utilizes tilt and recline functions along with fully removable components to provide optimal spatial clearance for caregivers. This configuration not only prevents caregiver musculoskeletal strain and user skin complications but also balances safety with the user's functional independence through smooth adjustments by gas-strut.

**Hygiene and Nursing Care** — Users presenting with severe posterior pelvic tilt, limited joint range of motion, adductor muscle tone, and other clinical signs may experience restricted workspace for caregivers performing diaper changes and hygiene care in the vertical sitting position, making thorough cleaning difficult.

Prolonged ineffective cleaning increases the risk of recurrent urinary tract infections and incontinence-associated dermatitis. Considering this necessity, it is recommended to configure the VIP2 with **tilt-in-space, recline, detachable & height-adjustable armrests**, and **detachable Swing-away Footrest**, providing greater spatial clearance for supine transfers and hygiene procedures.

Utilizing postural change functions for gravity to naturally maintain the user's pelvis in the correct position, reducing the difficulty of repositioning, minimizing pressure injury risk from shear forces, and providing a safe and comfortable care environment that reduces musculoskeletal injuries for caregivers during care processes.

**Care Safety** — Users with postural hypotension, or increased oral and nasal secretions due to swallowing disorders, are at risk for sudden adverse events; caregivers must continuously monitor the user's physiological status during movement. The VIP2's lightweight single-post **headrest** not only provides stable head and neck positioning for the user but also eliminates visual blind spots during caregiving, enhancing real-time monitoring. Through postural functions, posture angles can be adjusted when nursing intervention is needed.

**Gas-Strut Operation** — The application of **gas strut** allows caregivers to simply press the function lever to smoothly and steplessly adjust the **seat angle**. The smooth elevation ensures no sensation of sudden drop during postural changes, reducing anxiety for both the user and caregiver, and avoiding indirect risks such as triggering reflex.

**Balancing Care and Independence** — **Tilt-in-space and recline** functions assist with proximal postural stability for the user, enabling independent movement of distal limbs and head/neck. Maximizing the user's independence within minimal assistance.

Accessory / Feature	Clinical Application for Amputation
<p><b>Tilt-in-Space &amp; Recline</b></p>	<p>Tilt-in-space first, then recline. Tilting allows gravity to stabilize the pelvis in the seat before opening the recline angle. This eliminates shear force between the skin and the backrest during recline, ensuring skin integrity.</p> <p>Recline combined with tilt-in-space positioning enables caregivers to effectively perform cleaning and nursing care.</p> <p>Not only transfers partial hip pressure to the back, also distributes back pressure to maximize pressure relief.</p> <p>Effectively reduces symptoms caused by orthostatic hypotension, especially suitable for long-term bedridden users.</p> <p>Combined with articulating elevating legrests, the lower limbs can be positioned above heart level to promote lymph circulation and reduce lower extremity edema.</p>
<p><b>0° ~ 35° Tilt-in-Space</b></p>	<p>When tilt-in-space reaches 30°, the pressure under ischial tuberosity is significantly reduced and redistributed to the back. Reducing the risk of pressure injury.</p> <p>Tilt-in-space reduces spasticity and provides stable sitting positioning.</p> <p>Through tilt-in-space, gravity naturally settles the pelvis into the seat, preventing forward sliding in the sitting position, thereby reducing the risk of pressure injury caused by shear force on the skin and reducing the physical burden on caregivers who would otherwise need to frequently reposition the user.</p>
<p><b>Tension Adjustable Seat</b></p>	<p>Tension straps can be re-tightened at any time. This resolves hammock effect caused by fabric fatigue, ensuring the seat surface maintains proper rigidity to keep the pelvis in a balanced position.</p> <p>Tension straps can be re-tightened at any time. This resolves hammock effect caused by fabric fatigue, ensuring the seat surface maintains proper rigidity to keep the pelvis in a balanced position.</p>

<p><b>Tension Adjustable Backrest</b></p>	<p>The foldable backrest design reduces overall volume and allows handlers to keep the folded wheelchair closer to their center of gravity, helping to prevent lumbar and shoulder muscle injuries during carrying.</p>
<p><b>Adjustable Headrest</b></p>	<p>The three-piece design provides wide area support that stably supports the occiput, effectively distributing occipital pressure. The laterals wing can be adjusted inward for unilateral support on the affected side, while the wing on the unaffected-side remains open to preserve the visual field. This provides stable support and range of motion during head positioning.</p>
<p><b>Detachable Armrest</b></p>	<p>With the armrests removed, the wheelchair seat surface aligns seamlessly with the bed surface or transfer board. This provides a clear pathway for lateral transfer, significantly reducing collision and secondary injury during transfers.</p> <p>With the armrests fully removed, caregivers can get close to the user's trunk. This eliminates lumbar spine stress caused by lifting at a distance, improving caregiving efficiency and safety.</p> <p>In recline position, removable armrest enables lateral supine transfer.</p>
<p><b>Detachable Swing-away Footrest</b></p>	<p>The entire support structure can be swung outward and detached. Swinging the legrests away allows the wheelchair to be positioned closer to the target surface (e.g., toilet or hospital bed), shortening the physical transfer distance and reducing risk for both the caregiver and the user.</p>

<p><b>Articulating Elevating Legrest</b></p>	<p>Articulating elevating leg rests, combined with tilt and recline functions, allow the user’s lower extremities to be elevated above heart level. This promotes lymphatic circulation and helps reduce edema.</p> <p>Angle adjustable to support the entire leg, reduce pain, postural deformity, or enable surgical wound healing.</p> <p>The legrests can swing outward, inward, or also be removed creating front clearance. This allows the user to stand with feet firmly on the ground, or enables caregivers to support the user at closer range, significantly reducing fall risk..</p> <p>When combined with the recline function, increasing the knee joint angle adjustment to reduce forward sliding in sitting position.</p>
<p><b>Calf Strap</b></p>	<p>The calf strap prevents the foot slipping out of the footplate caused by changes in muscle tone, vibration, or positioning.</p>
<p><b>J-Hook</b></p>	<p>The extended curve allows caregivers to push the wheelchair under the tilt position without bending over preventing musculoskeletal injuries.</p> <p>Extends upward and backward, creating sufficient stepping clearance and increasing pushing efficiency.</p>
<p><b>Gas Strut</b></p>	<p>The gas strut provides assistive force, allowing caregivers to simply guide direction via the handles while the gas strut bears most of the weight. This significantly reduces caregiver musculoskeletal injuries and effectively improves care quality.</p> <p>Using gas strut to provide a stable speed of postural change ensures no sensation of sudden drop during postural changes, reducing anxiety for both the user and caregiver, and avoiding indirect risks such as triggering reflex.</p>
<p><b>Attendant Brakes</b></p>	<p>The attendant brake decelerates or stops the wheelchair, enhancing safety and convenience during caregiving.</p>
<p><b>Anti-Tipper</b></p>	<p>Anti-tipper provide the protection during sudden center-of-gravity shifts, preventing the wheelchair from tipping over.</p>

## **Wooden Table Tray**

When hands extend forward and support on the table surface, it assists trunk upright maintenance and encourages neck extension. This resolves social isolation caused by postural collapse and improves respiratory efficiency by reducing kyphosis.

Provides a partial weight-bearing surface for comfortable arm placement. This reduces continuous shoulder joint traction from arm weight, helping to reduce pain and assist in edema reduction.

With the table tray installed, utensils can be placed directly at an optimal distance in front of the user, resolving feeding difficulties caused by improper distance between the user and the table.

Enables users to easily visually monitor hand positions and limits excessive upper limb outward movement. This helps users with impaired spatial awareness prevent accidental collision injuries.



*The clinical recommendations provided in this document are for professional therapists' reference only and should not replace individualized clinical assessment. The actual prescription should be determined by healthcare professionals based on the user's physical functions, home environment, and individual needs. Karma Medical reserves the right to change product specifications.*

