

Pressure relief cushion

Seated support surface (cushion) designed for prevention of pressure injury. Product features include the shape and material characteristics of the cushion. Cushions may be one piece, or a series of layers. Materials may include static air, foam, gel, coir, mesh, fluid, silicone coated wool, and dynamic (alternating air) cushions. Materials offer varying amounts of pressure redistribution. Cushion shape or the contour of the cushion also influences pressure redistribution. Cushion contours may include an ischial (pre-seat bone) shelf to prevent sliding; contoured side supports which create a well to off-load pressure under the ischia (seat bones) to optimize pressure distribution; and contoured seat well (depth may vary according to level of postural support and pressure relief function provided).. Profile height of cushion will vary according to cushion function.

- Product Classification

- APL (WHO Assistive Product Priority List): 29 (Pressure relief cushions).
- ISO 9999:2022: 043303 (Seat cushions and underlays for tissue integrity).

- Possible configuration variants

None specified.

- Possible accessories or optional components

- Base (insert or replacement stable base).
- Cover or cover with handle (covers should be washable, two-way stretch, vapor (air) permeable and water resistant).
- Hand pump for air cushions.

- Product goals

Activities or functions the product is mainly intended to support, according to WHO ICF Classification:

- Caring for body parts [\[d520\]](#).
- Maintaining body position [\[d415\]](#).

- Indicated impairments

Difficulties the product is mainly intended to address, according to the WHO ICF Classification:

- Protective functions of the skin [\[b810\]](#).
- Sensation related to the skin [\[b840\]](#).

- Contraindicated impairments

Difficulties for which the product may be inappropriate:

None specified.

- Indicated environments

Specific environments in which the product should be used:

- Seating surfaces (for example a wheelchair or static chair).

- Contraindicated environments

Environments in which the product may be inappropriate:

- Hot or cold environments (the pressure relieving properties of some materials such as foam and gel react and change in hot or cold environment, becoming more viscous or stretchy in hot weather, and less malleable in cold weather).

- Other indicated factors

Other factors or situations the product is intended to address:

- Limited sensation, mobility, activity and high potential for friction, shear and moist skin (factors that increase the risk of pressure injuries).
- History of pressure injuries (due to diabetes mellitus, other perfusion, oxygenation, nutritional and circulation deficits, impaired motor abilities causing movement restrictions such as spinal injury or cerebral palsy).

- Other contraindicated factors

Other factors or situations in which the product may be inappropriate:

None specified.

- Points to be considered in product selection

- The cushion represents just one of the surfaces with which a user will interact within 24 hours. Transfers on / off the cushion should be considered as a source of risk (shear forces or different heights for sliding transfers, risk of puncturing air cushions with slideboards, risk of skin shearing during positioning of sling for hoist use, risk to user if transferring onto a non-pressure-relieving surface such as a plastic shower seat or commode seat). Consideration should be given to achieving the same level of pressure relief on all surfaces.
- A stable base is essential to support the cushion and is a condition for this product to work as intended, giving stability and comfort.
- Users of different sizes should be provided with suitable cushions e.g. paediatric, bariatric, users with high level lower limb amputations.
- Each user has a unique set of needs. These needs can be categorized as: physical (the user's health situation and postural and functional needs), environmental (where users live and where they need to use the cushion), and lifestyle (the things users need to do when sitting on the cushion as a base from which to lead their chosen way of life).
- Each user requires an individual assessment, taking into account lifestyle, vocation, home environment and physical condition; using the information gained from the assessment, a pressure cushion prescription is developed together with the user, family member or caregiver.
- The prescription details the selected cushion type, size, special features and modifications; also detailed is the training the user needs to effectively use and maintain the cushion.
- Users with sensation or partial sensation for pressure and touch who use cushion on full time or temporary basis; and users who need minimal posture support features, can utilize comfort and low pressure relief cushions (contoured base injection molded foam cushion with posture support features design, or layered cushions with a firm base, low contour shelf and well, low profile, soft or low firmness foam, noting layered cushions can be customized for additional postural features to stabilize the pelvis and thighs).
- Users with no sensation, or partial pressure/touch sensation with good skin condition, little atrophy and good movement ability in the wheelchair and persons who need minimal posture support features to stabilize the pelvis and thighs can utilize contoured air cushions with no base (specifically, no dedicated base but multiple sections, medium profile, where air volume can be manipulated in different sections through inflating/deflating cells or changing air pressure. The placement of sections and air volume create off-loading of pressures on seat bones (ischia) and create a pre-seat bone (ischial) shelf.
- Users with no sensation, or partial pressure/touch sensation with good skin condition, little atrophy and good movement ability in the wheelchair and persons who need posture support features to stabilize the pelvis and thighs can utilize postural support and medium risk pressure relief cushions (contoured base injection molded foam cushion with posture support features, or cushion with contoured base and removable fluid-filled (gel or air) pad located in well area, or layered cushion with a firm base, medium contour depth of well, medium to high profile, soft foam, with optional modifications to support any postural deviations of the pelvis, hips and thighs).
- Users with no sensation and at high risk of skin breakdown due to their level of functional impairment as well as body function and structure impairments (e.g. degree of atrophy, fragile skin condition) or who need minimal to moderate posture support features to stabilize the pelvis and thighs require postural support and high-risk pressure relief cushions such as a contoured air cushion with multiple high profile sections in which air volume can be manipulated through removal/adding cells or changing air pressure.
- User with no sensation and at high risk of skin breakdown who requires additional postural support is more suited to contoured base cushions with posture support features and fluid-filled (gel or air) pad (firm base, deep contoured well, high profile top layer with large volume fluid-or air-filled pad located in shelf/well area, which have some ability to modify and adjust the postural configuration through shaping support surfaces).

- Points to be considered in product fitting

- Trained personnel fit the cushion and ensure it is on a suitable base and installed correctly front to back; depending on the product and service facilities, this may include assembly, and possible modification, of products supplied by manufacturers or production of products in the service workshop.
- During fitting, the user and competent personnel together check that: the cushion is the correct size; is correctly adjusted for the user and meets the user's mobility and postural support needs to minimize the risk of the user developing secondary deformities or complications.
- **Points to be considered in product use**
 - The user and caregivers should be instructed on how to safely and effectively use and maintain the cushion. Key areas of user training include: how to transfer in and out of the wheelchair, how to handle the wheelchair; how to ensure an air cushion is sufficiently inflated, basic wheelchair mobility; how to stay healthy in the wheelchair – for example prevention of pressure sores; how to look after the wheelchair and cushion and, if appropriate, dismantle and reassemble the wheelchair; and who to contact in case of problems.
 - In addition to a suitable support surface, active management is recommended for users at risk of / with pressure areas: 1) Active repositioning and pressure-relieving maneuvers such as leaning forward to lift pressure from the sacrum or pushing up on armrests to lift pressure from the buttocks and thighs are recommended throughout the day. 2) Frequent small shifts in body position for user who are too unstable to maintain a regular repositioning schedule can be implemented by caregivers. 3) Users and caregivers should monitor pressure care through regular skin checks and should be encouraged to do so every week with the correct training.
- **Points to be considered in product maintenance / follow-up**
 - Follow-up appointments are an opportunity to check cushion is providing good postural support and pressure relief for the user. The frequency of follow-up will depend on the individual needs of the user.
- **Examples of products available on the market**
 - Live product search in the EASTIN website <https://www.eastin.eu/en/searches/products/list?iso=043303>

Source

This Fact Sheet was compiled in 2021 by an international team of experts, to provide the initial knowledge base for a project ("An online system to assist the selection of assistive product") supported by the World Health Organization in 2020-2021 within the GATE Initiative (Global collaboration on Assistive Product). Fact Sheets were compiled for each of the 50 types of products included in the WHO APL (Assistive Product Priority List).

The team was composed of Renzo Andrich (Italy, group leader), Natasha Layton (Australia), Stefan von Prondzinski (Italy), Jerry Weisman (USA), Silvana Contepomi (Argentina) and Hasan Minto (Pakistan).

The project led to a prototype online tool called ASPREX (ASsistive PProduct EXplorer). At the end of the project, it was transferred to a WHO collaborating center (the Global Disability Hub in the UK), in view of possible future developments.