

WELLVOYAGE SEAT



Philisophy

UNIVERSALLY DESIGNED AIR TRAVEL

While constant efforts have been made to create a barrierfree and inclusive society, air passengers, especially people with disabilities are still required to endure physical and psychological burden during flights due to the confined space and unique environment. We have undertaken research and development of accessible products with the objective of relieving burdens and creating a comfortable experience in all aspects of air travel for all people, including those with disabilities, older people, children, and cabin crew.

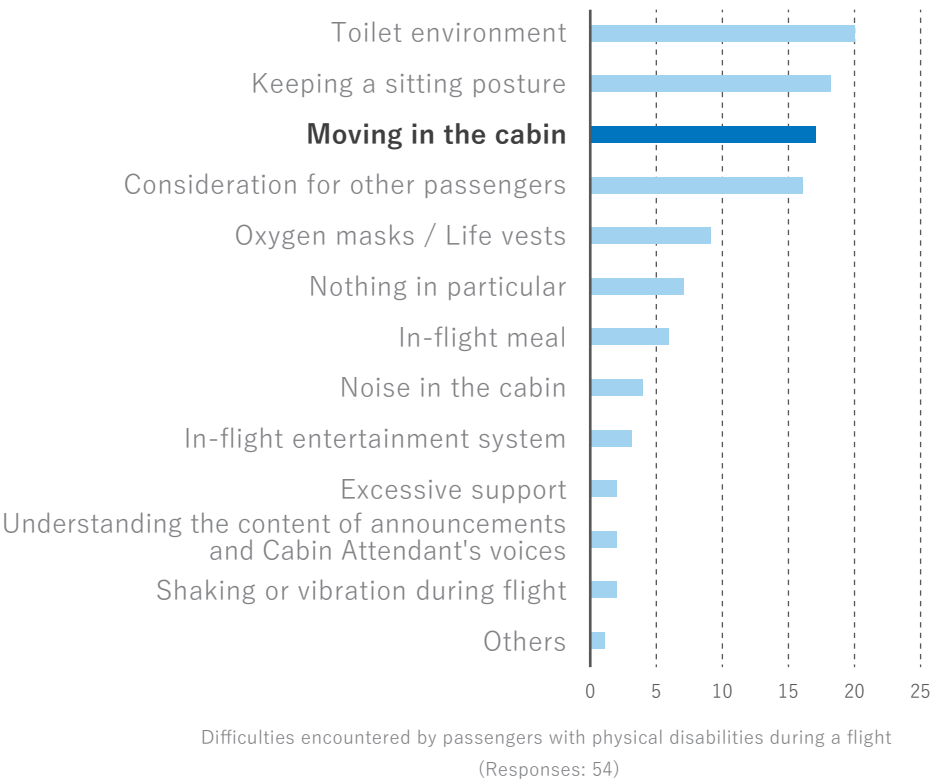


Problem

Wheelchair users face significant physical and mental strain

We conducted a survey of people with physical disabilities to gather their opinions+. As a result, we identified mobility throughout the cabin as a high-priority issue. Even today, personal wheelchairs cannot be used inside the cabin. Moving with an uncomfortable, simple onboard wheelchair, and the transfer process—often involving unnatural postures in the narrow cabin space—cause a physical strain on wheelchair users and caregivers. There is also the problem that wheelchair users who need assistance to transfer have difficulty transferring to the window seat. As these inconveniences accumulate, the mental burden on wheelchair users becomes significant, leading them to give up on using air travel.

+ Yasuoka, T., Yamada, K., Nakajima, T., Tsukamoto, K. and Sakai, R., "A feasibility study report on aviation technology for health, welfare and accessibility" , JAXA Research and Development Memorandum, JAXA-RM-22-001, 2022. <https://jaxa.repo.nii.ac.jp/records/48715>





Aircraft seat providing a comfortable journey for wheelchair users

WELLVOYAGE SEAT is a detachable aircraft seat designed to function as a wheelchair. Its design accommodates the narrow aisles of aircraft, enabling seamless support for passengers throughout their journey from boarding to disembarkation. It addresses the **challenges faced by passengers who require transfer assistance, particularly the difficulty of moving within the confined space of an aircraft cabin.** Additionally, it allows these passengers to access window seats.



For boarding wheelchair users, the WELLVOYAGE SEAT will be delivered to the boarding gate by a staff member.



After safely transferring in a spacious area, wheelchair users proceed from the boarding gate.



Wheelchair users can board the aircraft directly without transferring to an onboard wheelchair.



Wheelchair users can navigate the narrow cabin aisles with safety and comfort.



As no transfer is necessary upon reaching their seat, wheelchair users and caregivers experience no physical strain.

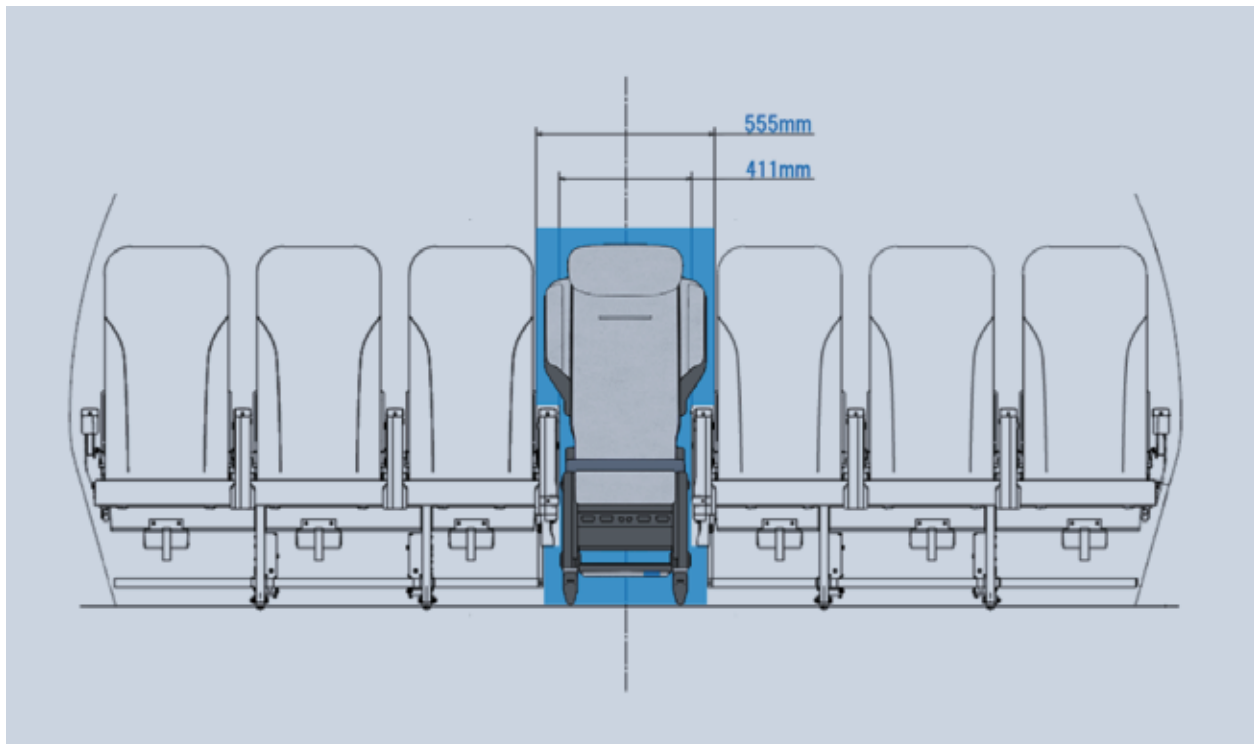


Even when using the lavatory during the flight, wheelchair users can move comfortably without transferring.



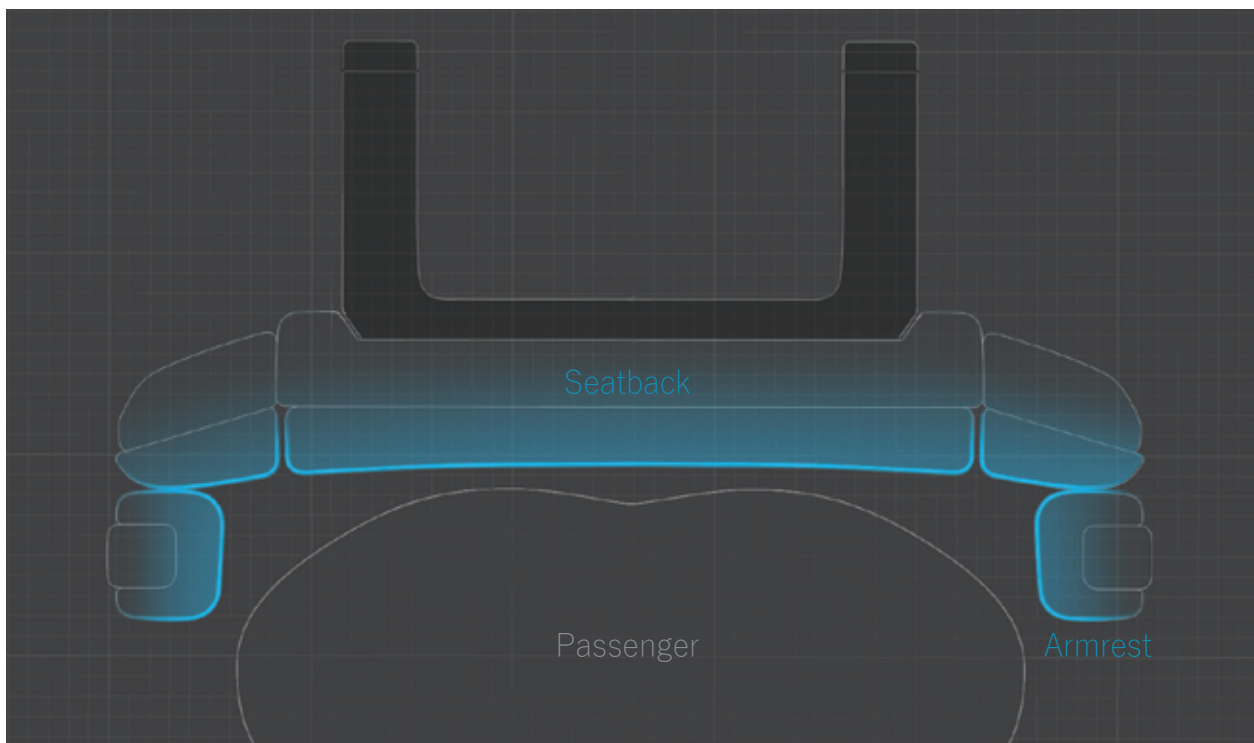
Structure aimed at on-board installation

The base frame can be secured to the standard seat tracks used inside the cabin. This allows airlines to introduce the WELLVOYAGE SEAT without performing large-scale airframe modifications. **We designed the structure that not only offers a new experience for wheelchair users but is also easy for airlines to adopt.**



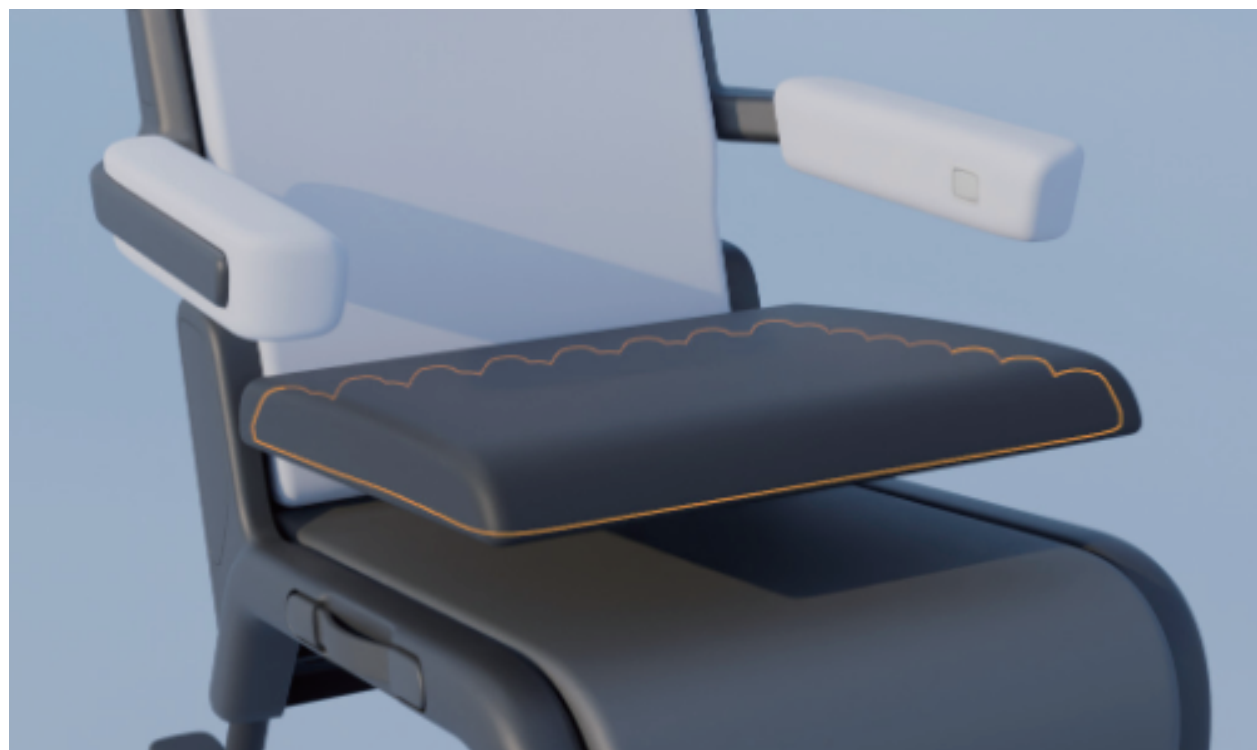
Designed for narrow passage

The aisle in the aircraft cabin is narrower below the armrests. The WELLVOYAGE SEAT is structured so that its armrest can be fold up to avoid the armrests of other seats vertically when passing through the aisle. **This allows for both easy transport and passenger comfort.**



Designed for narrow passage

By positioning the fold-up armrest next to the passenger's shoulder, **it also serves to support the upper body of passengers with unstable trunks.** The lower body is supported by securing it with a seat belt and a foot belt, thereby protecting the passenger's safety.



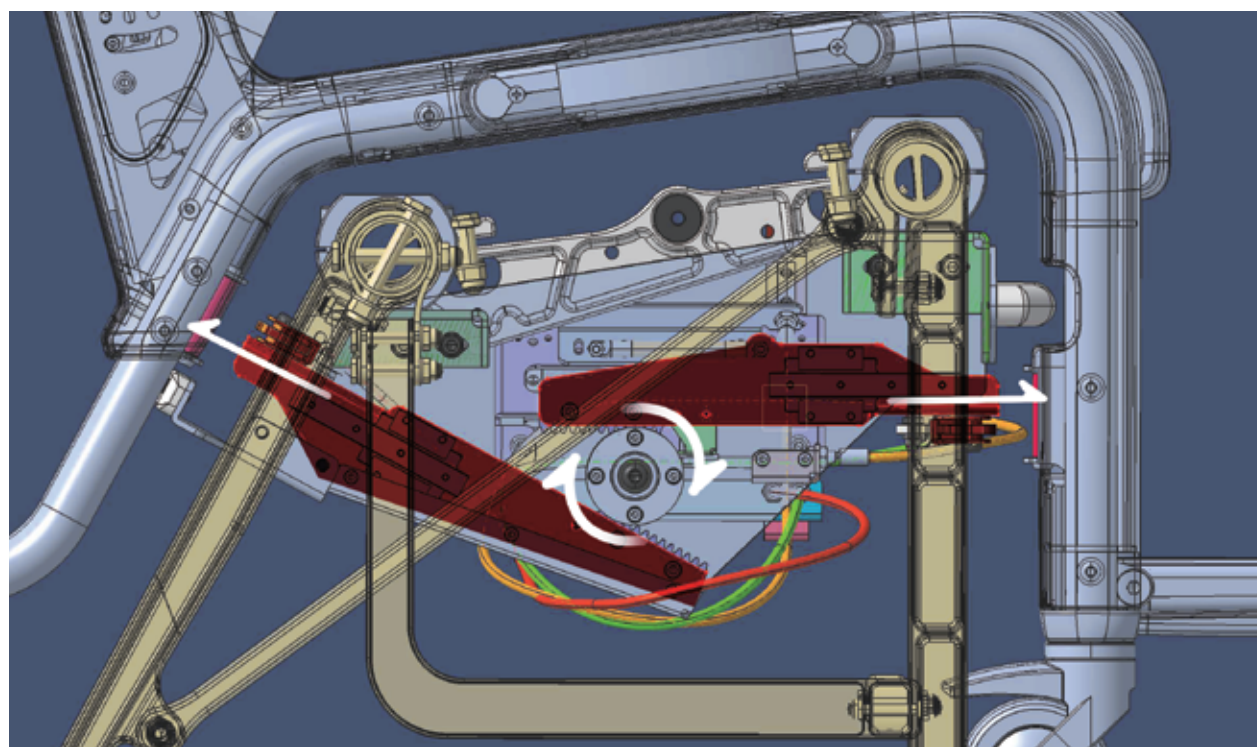
Replacable Cushion

For wheelchair users, it is essential to use a seat cushions suited to their body. Using cushions on a standard aircraft seat makes the seat surface too high and reduces the comfort of the backrest and armrests. The WELLVOYAGE SEAT is designed with a two-layer seat cushion structure, **allowing users to remove the top cushion layer and replace it with their own cushion for a comfortable sitting experience.**



Lever operated by crew

A crew member operates a lock lever installed on the aisle side to secure the seat to the base frame. The lock lever is divided into two parts: one for the window side and one for the aisle side, allowing the crew member to operate it with one hand. The release lever is hidden out of sight from the passengers' direct view to prevent accidental operation by passengers. **Through these, we sought to achieve a balance between efficiency and passenger safety.**



Original Locking System

The locking system is situated inside the base frame and is connected to the lock lever via a wire. The structure works by converting the pulling force applied to the lock lever into a forward and backward motion. Latches that move in this manner clamp the striker on the seat frame, thus securing the seat to the base frame. **By placing the locking system on the base frame side, we keep the seat light weight.**



Headrest angle adjustment



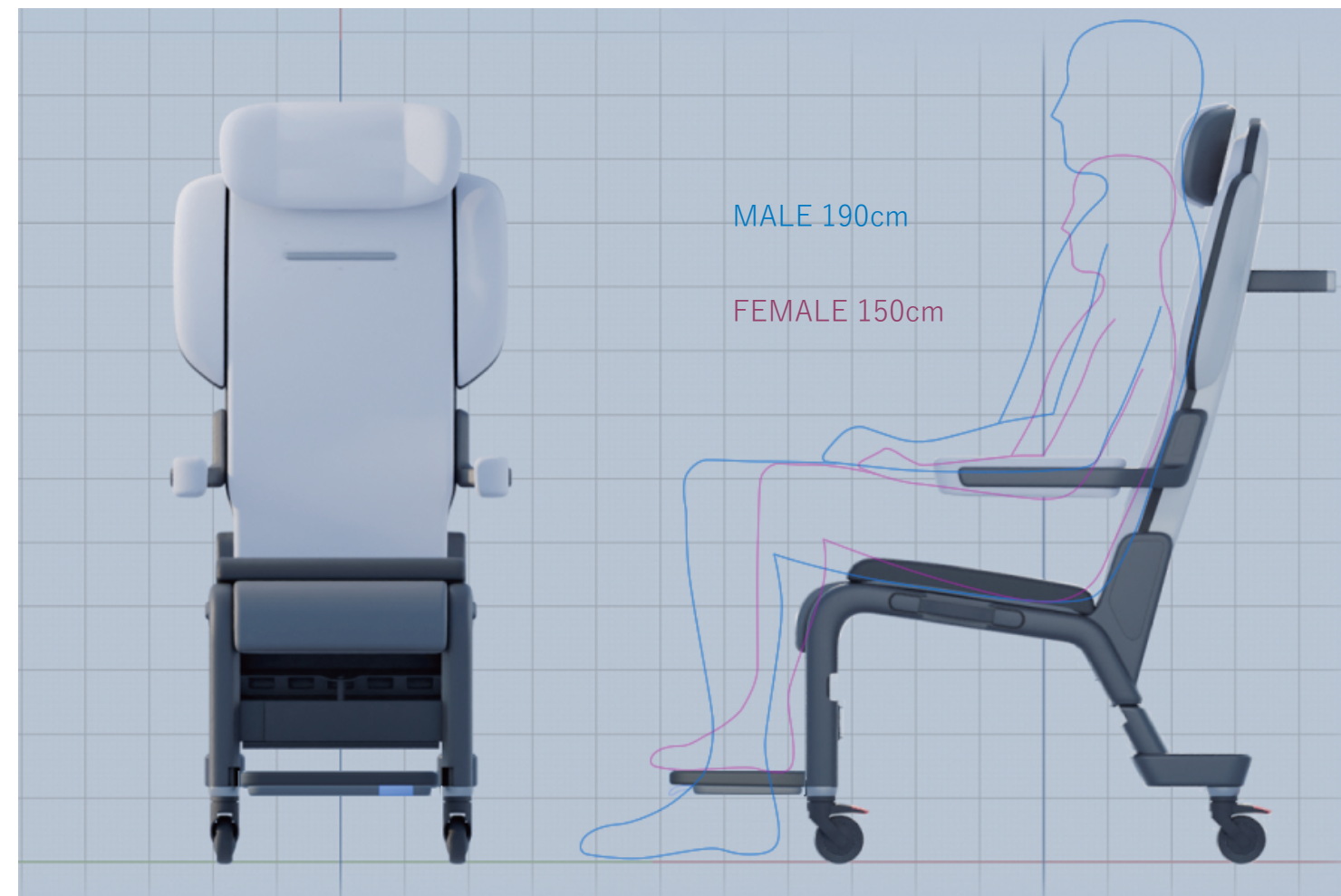
Headrest height adjustment



Fold-up armrest



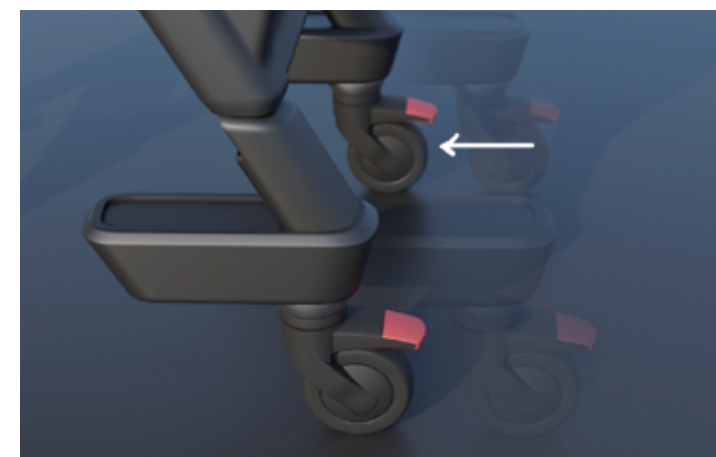
Detachable handle



Replaceable pad



20-degree recline



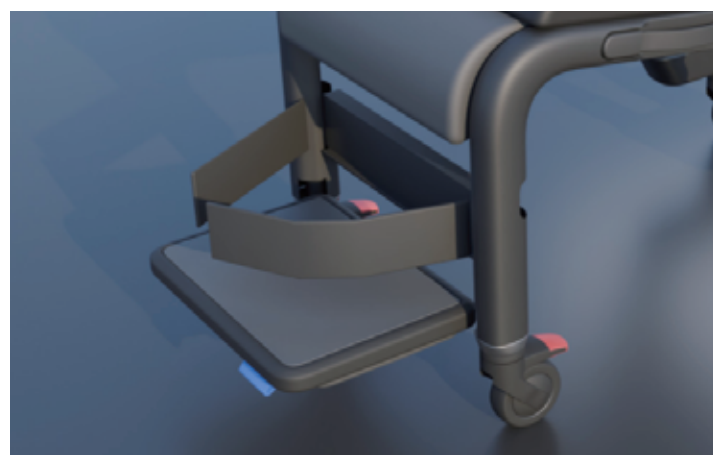
Retractable rear wheels



Assist grip



Footrest



Foot support belt

Seat Design for Universal Comfort

The backrest and seat cushion realize comfort equivalent to that of an economy seat, based on Toyota Boshoku's knowledge. This allows wheelchair users to spend time comfortably not only during the flight but also when moving. Furthermore, with a design that accommodates all kinds of body size, we aimed for a seat that is easy for everyone to sit in. **On flights where there are no reservations from wheelchair users, we will make the reservation available to all people.**



User-centric review

The research team includes JAXA employees who use electric wheelchairs and cabin crew members. We are continuously and thoroughly pursuing user-centric research and development through measures like conducting surveys and interviews with disability organizations, exhibiting at the International Home Care and Rehabilitation Exhibition (October 2025, Tokyo), and gathering feedback. At the International Home Care and Rehabilitation Exhibition 2025, approximately 1,500 visitors viewed the mock-up over three days, and **we received survey cooperation from 619 of them.**

Voices from mock-up visitors

- I feel that if this product is introduced, with attention paid to things like the width and the seat surface, and fine details, it would make it much easier for people who use wheelchairs.
- I hope this product spreads quickly around the world and helps to realize a barrier-free environment.
- I think it should be covered more by the media and on social media.
- I would appreciate that it looked the same as a regular seat.
- I think it would be even more reassuring if we could support the body with a chest belt or similar, especially for those whose trunks are unstable.

Q. Do you hope that WELLVOYAGE Seat will be implemented in actual airplanes?

→ 98.7% responded "Prefer"

