

# Dual Stability System (DSS®) on the Invacare® Rea® Passive wheelchair range



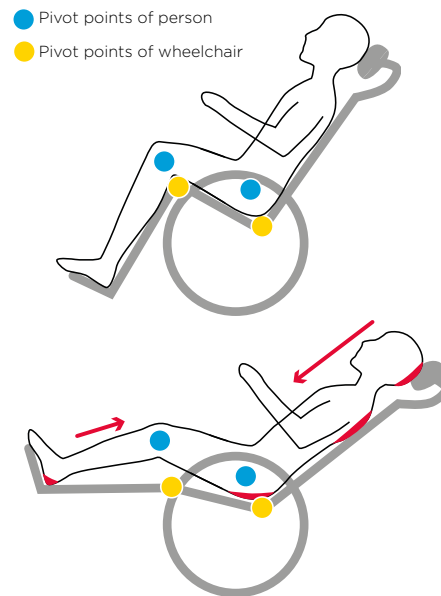
Invacare® Rea® is based in Sweden and have an incredible 50 plus years of experience and expertise in providing wheelchair solutions. Specialists in tilt-in-space chairs, the Rea range is renowned for its superb design, innovative technology and high quality, enabling them to produce stable and safe pressure re-distributing passive chairs.

Passive/Tilt-in-space wheelchair patients are heavily dependent on their wheelchair and require a great deal of assistance from attendants. An average person will spend the majority of their day in the chair and so a tilt and recline function is key to redistribute pressure. Going in and out of tilt and recline could however, result in shear and friction forces and put the person at risk of developing a pressure ulcer.

## Pivot point placement

On many tilt-in-space wheelchairs, the chair and the persons pivot points are not aligned resulting in a non-synchronised movement. As a result, when the chair reclines, the headrest and back support move up, forcing them to slide down the chair to compensate. This leads to shear and friction forces. When the chair returns to its original position, they are being forced back up the back rest which causes more shear and friction forces, leading to clothes being wrinkled, which for people who are unable to adjust themselves, can be uncomfortable.

Once a chair is reclined it is then optional to lift the legrests, however, due to the non-synchronised movement, the knees tend to be lifted which forces the person towards the backrest, causing compression.



## Stability

Another concern for people in a standard tilt-in-space chair is stability when going into and out of tilt, leaving them feeling anxious and unsafe. This is due to no weight shifting abilities causing a high raise in the front of the chair (see image on bottom of page 2 for a visual explanation).

Two passive wheelchairs\*, one **with** and one **without weight shift abilities**, were Tip Stability Tested (a test that tilts the ground until the chair tips over), the results were very clear to see. The chair **with** the weight shift ability was significantly **more stable** both with the chair in its standard position and most importantly when the chair was in tilt.

	W/o weight shift	With weight shift
<b>Passive wheelchair in standard position</b> Backrest angle 10° & seat angle 8°	17°	19°
<b>Passive wheelchair in tilt position</b> Backrest angle 22° & Seat angle 20°	7.4 °	17°

\*Both with 16" wheels and loaded with a 125 kg dummy



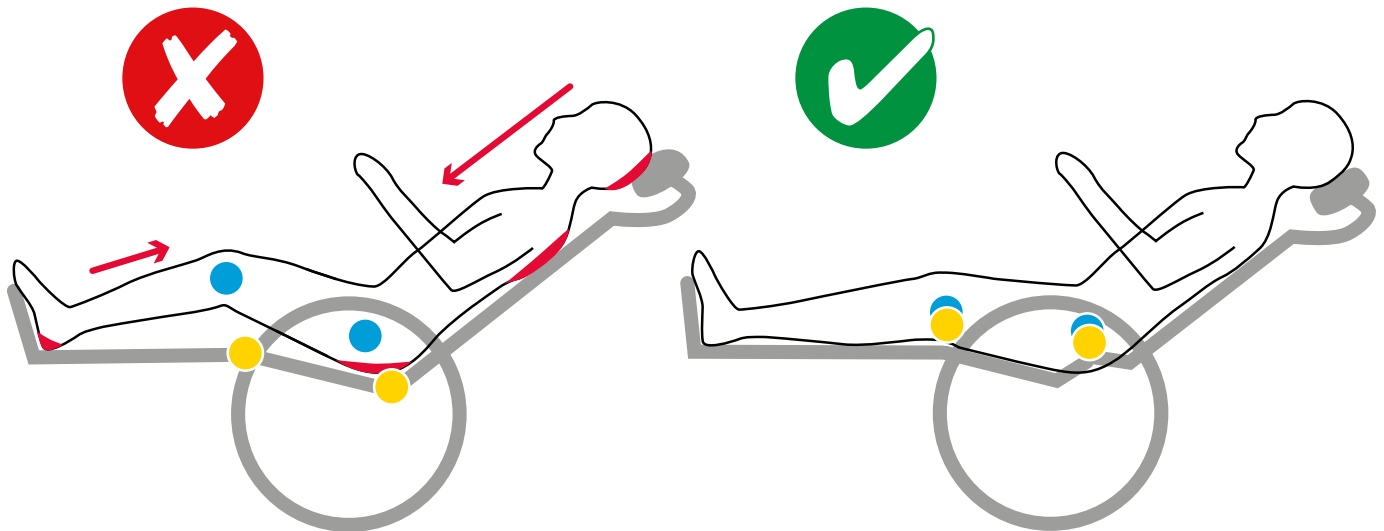
Knowledge bank



## About DSS

To eliminate these risks and concerns, the Invacare Rea Passive wheelchair range has DSS built into each chair to improve stability and ensure an anatomically correct sitting position every time the chair goes into and out of tilt and recline. The sophisticated system has been on the Rea passive wheelchairs since the early 1990's and comprises of high pivot points and weight shifting abilities.

The high pivot point designed for the Rea chairs allows for body length compensation and so reduces shear, friction and compression. When the chair goes into and out of tilt and recline, the head, neck and trunk of the person will remain in the same position on the headrest and backrest, eliminating any sliding or movement.



Weight shifting has been built into the Rea chairs to ensure the wheelchair is stable no matter which seat angle the chair is at. In basic terms, it allows the seat to move downwards and forwards which enables it to retain its stability, despite the backwards leaning position. The seat simply slides towards the chassis.

### DID YOU KNOW...

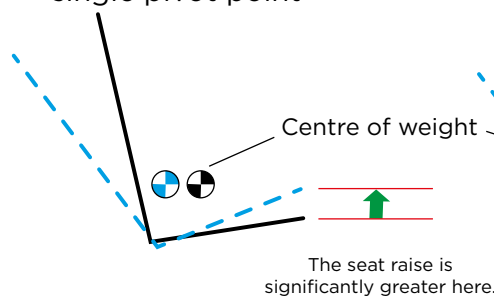
in order to maintain a good seating position when re-distributing pressure, you must:

1. Tilt first
2. Recline
3. Angle legrests if required

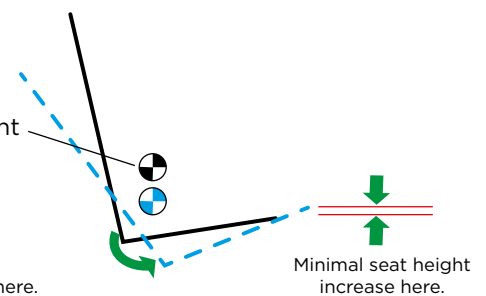
When returning to the original position:

1. Fold down legrests
2. Lift up backrest recline
3. Lift up tilt

Without weight shift /  
single pivot point



With weight shift



To view our short video on DSS, please visit the 'Invacare UK' YouTube channel. 

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