BeSafe Beyond rotation lock explained

Summary

BeSafe Beyond is a new innovative modular rotation seat system. The seats can be clicked onto the Beyond base and rotated sideways for easier access to the child. It is one of the safest systems ever developed.

The seat is designed with a locking mechanism that gives the user guidance to know how the seat should be positioned and keeps it in that orientation during regular use. The mechanism is constructed purposely with what we call a “soft lock” meaning a softer lock than other seats, thereby it can be expected that the seat can be forced out of its locking position when purposefully pushing or pulling it in certain ways.

It has come to our awareness that videos showing the seat rotating out of its locked position on the base, either by intentionally forcing it or by kicking it to harm the system, have been shared in various channels, raising doubts about the seat’s safety.

As a part of the BeSafe test program, the seat has been thoroughly crash tested, including being positioned out of the locked position. A wide range of the crash tests in the development program, including frontal, side and rear impacts, are in fact performed without any lock at all, and the seat is performing very similar in crash tests with and without lock.

Description of rotation mechanism

When connected to the base, the seat locks into a fixed position once rotated into rear facing direction with a “nose” coming out of the seat. This locking position gives the user a guidance to know how the seat should be positioned and keeps it in that orientation during regular use. During normal user handling, it is of course natural to also wriggle the seat a little bit to confirm it is indeed in the locked position. To unlock the seat and rotate it sideways, the user pulls the handle located on the side of the seat, which is also marked with a rotation symbol on the handle.
This handling step is also described in the user manual and shown in the instruction video.

Repeatedly abnormal use by forcing it out of the locked position can make the seat easier to rotate out of locked position

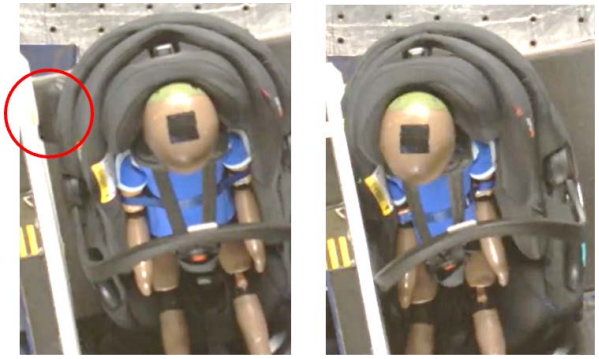
The locking mechanism of all of our seats is tested in the production line before leaving factory. Purposefully forcing the seat out of its locked position with extra force by either pushing or pulling near the foot end or front end of a seat without using the handle is not only abnormal use of the seat but could harm the locking mechanism.
There can be small variations in how much force is needed to create that situation.
Different from many other seats, this seat will not break if you force it out of position, however, locking mechanism might be slightly deformed.
This could result in needing less force to push the seat out of the lock next time.
Unless a lot of abnormal use caused the locking mechanism to be completely malfunctioning, the seat will not unlock itself during regular use or driving.

Crash situations are not as store demonstrations

The way the seat is being intentionally pushed out of its locked position does not represent what would happen in an accident scenario. A side impact does not generate the rotational momentum needed for the seat to turn. Instead, the entire seat is pushed sideways, and as proven in many tests, it protects the child very well. Even if the side impact first hits a single point of the seat, such as the SIP+ that is positioned off-center towards the back of the seat, this does not create a rotation momentum, as things are happening too fast in a crash.

Even in an accident situation where the side impact is not with a wide surface, such as the front of another vehicle, but with a more focussed impact area by for example a pole or a tree, cars are developed so that force not only gets transferred onto a large area on the car, but the car also deforms and takes up energy. This can be seen in Euro NCAP's side pole crash tests.

The seats are extensively tested, including in various situations where they are not locked in the rear-facing position. A wide range of the crash tests in the development program, including frontal, side and rear impacts, are in fact performed without any lock at all, and the seats are performing very similar in crash tests with and without lock. We also perform crash-tests with the seats in an "out of position test" where the seats are not in rear facing position but slightly rotated on the base, without an active lock in the base. These tests have also proven very good performance, essentially the same as when in fully locked position.

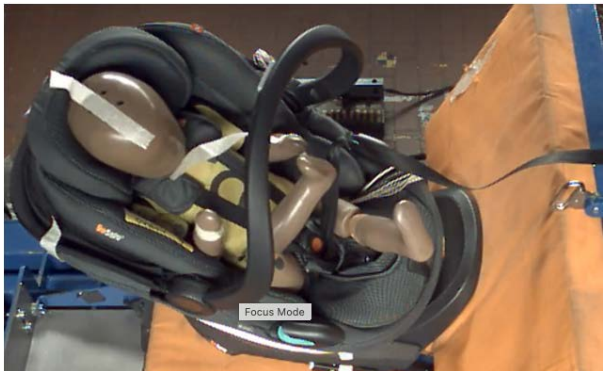


Test with single first impact point

Euro NCAP side pole test example

https://www.youtube.com/watch?v=Fpas_TFv2pg

Test without locking mechanism



Out of position test

Conclusion

In conclusion, none of the attempts of purposefully pushing the seat out of its locking position, will by itself affect the performance of the seat in a crash. To avoid unnecessary damage to the product, use it in the normal way by pulling the handle to rotate the seat sideways. In cases where the lock got deformed, so that no force is needed to push it out of position, please reach out so that our customer support team can assist you further.

Best Regards - **Okke van Mourik** - **Director New Product Development**