COMPATIBILITY TEST SUMMARY REPORT

RESEARCH PURPOSE

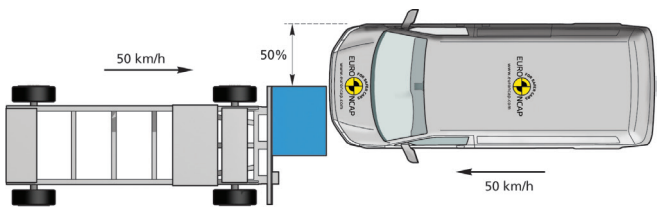
Objective	Two full-scale crash tests were carried out involving a commercial van of the N1 category (up to 3.5 tonnes). The reference test is the Euro NCAP Mobile Progressive Deformable Barrier (MPDB) test against a half-loaded van. This test provides insight into the protection offered to the van's driver and front passenger during the crash. It also examines the risk that the van poses to passengers in another vehicle, based on the analysis of the barrier footprint. For comparison, the same commercial van was crashed into a modern 5-star passenger car of approximately the same weight as the barrier and at the same test speed.
Remarks	Both crash tests were conducted at the ADAC Technical Centre in Landsberg during August of 2020 and were financially supported by ADAC, FIA Region 1 and the Swedish Transport Administration. All vehicles used were bought at local dealers. To score the test results, Euro NCAP AOP protocol v9.1.2 and AOP protocol v8.0.3 were applied for the van and passenger car, respectively.

VEHICLE SPECIFICATION AND EQUIPMENT

	Commercial Van	**Passenger Car**
Vehicle Model	Nissan NV400 PRO F35.13 L2H2 FWD (2019) 	Nissan Juke DIG-T 117 N-Connecta (2019) 
Equipment	Driver only: frontal airbag, belt load limiter and pretensioner	Driver and front passenger: frontal and curtain (side) airbags, belt load limiters and pretensioners
Test Weight	2848 kg	1487 kg (cf. 1400 kg MPDB)
Test Speed	50 km/h	50 km/h
Driver/Passenger	THOR-50th male ATD (2x)	Hybrid-50th male ATD (2x)
Remarks	Also available as Renault Master and Opel/Vauxhall Movano	Euro NCAP 2019 5-stars

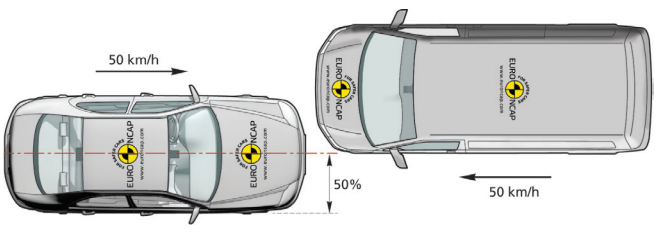
TEST CONFIGURATION

Mobile Progressive Deformable Barrier



Mobile Progressive Deformable Barrier Face Specification v1.2

Van-to-Car



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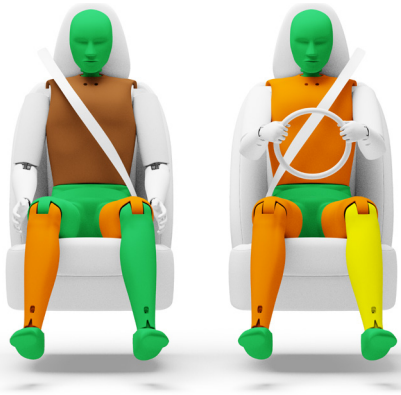
TEST RESULTS COMMERCIAL VAN

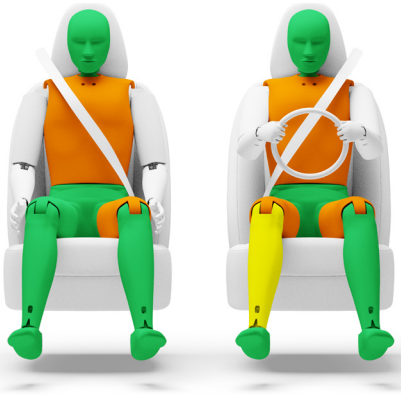
Mobile Progressive Deformable Barrier

Driver	10.68 / 16 Pts
Passenger	9.14 / 16 Pts

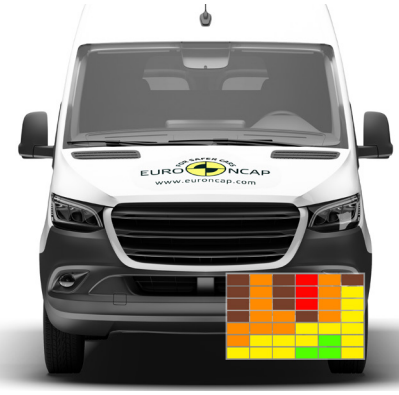


Van-to-Car

Driver	11.31 / 16 Pts
Passenger	11.95 / 16 Pts



Compatibility assessment

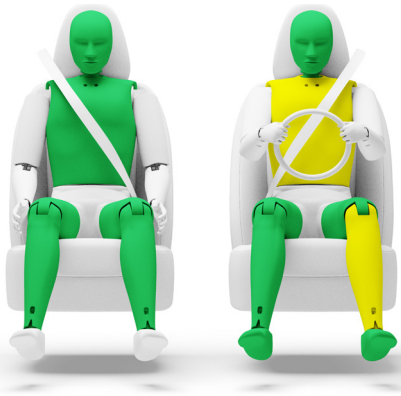


Bottoming out / OLC 34.2g / SD 152 mm

TEST RESULTS PASSENGER CAR

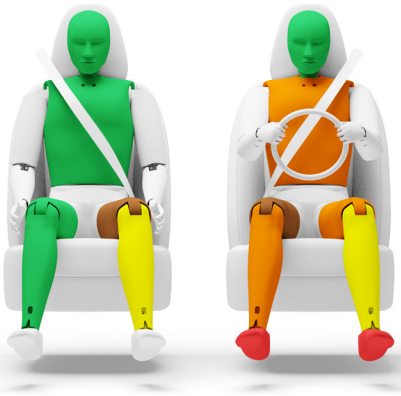
Offset Deformable Barrier - 2019 Rating

Driver	15.68 / 16 Pts
Passenger	16.00 / 16 Pts



Van-to-Car

Driver	7.74 / 16 Pts
Passenger	13.6 / 16 Pts



CONCLUSIONS	
Self-protection	The Nissan NV400 commercial van – like the Renault Master and the Opel Movano with which it shares the design – only offers a standard occupant restraint system for the driver, whereas frontal airbag, belt load limiter, belt pretensioner and seat belt reminders are either optional or not available for the front passenger. The lack of fitment of this equipment, which has been standard across the passenger car fleet for many years, is typical for the commercial vehicle segment that regularly puts short-term profits ahead of safety principles. While vans are generally heavier and taller than most passenger cars, the deformation of the body, observed in both crash tests, suggests that it would be a mistake to rely only on weight and size. Crashes in the real world (e.g. at higher speeds or with more cargo) can be much more severe and the test results reveal that the van body most certainly is not designed to withstand much overload. Both occupants in the commercial van showed a high risk of injury to the chest, knee, femur and pelvis.
Partner Protection	Overall, the MPBD test results correspond well with the van to car results. The post-crash barrier deformation analysis demonstrates that the van's lack of compatibility is worrying: the structure bottoms out the barrier face and does do not enough to mitigate high loading of the opponent vehicle. In the case of the Juke, it is the "dual load path" design of the front-end that has prevented a more catastrophic outcome. Nevertheless, the driver and passenger showed increased risk of chest, knee, femur, pelvis as well as the lower extremities, compared to the official 64 km/h Offset Deformable Barrier (ODB) rating tests. While the Juke is new and has been designed for compatibility, the dated van clearly has not. The two vehicles share the same badge, however.

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