

The specification used for the develop of the RCAR bumper was taken from the “RCAR Bumper Barrier Dimensions and Specification - Appendix 1”.

Thatcham, the IIHS, and other insurance groups around the world carry out low speed bumper impacts to assess the reparability of different cars. The main barrier used in these tests is the one developed by the Research Council for Automobile Repair (RCAR).

Specifications

Element Type	Number of Elements	Timestep	Validation Code	Regulation Test	Regulation Speed
Shell	12 263	1.2E-6sec	R7.1.2	-	-

Validation

Two static crush tests have been used to calibrate the LS-DYNA RCAR model. The tests involve a rigid rectangular load plate impacting the bumper perpendicularly and with an angle.

The force-deflection curves generated from model`s analyses have been compared against the force-deflection corridors from the specification document.

This validation work has been carried out in both SMP and MPP versions of LS-DYNA R7.1.2 to ensure the correct performance and accuracy.

