Evolution of Murano

CUV Segment Changer

1st GEN
2003

2nd GEN
2009

3rd GEN
2015

Feature Rich Vehicle
Vehicle Dimensions

Overall vehicle size increased from previous Murano

Tread: 1,640 (+30)

OAW: 1915 (+30)

Knee Room: 680 (+36)

OAL: 4,888 (+65)

W/B: 2,825 (±0)

OAH: 1,690 (-10)

Can load 4 suitcases

( ) : difference from previous Murano
Vehicle Light Weighting

Light weighting was achieved with the following strategies:

- Material Selection
- Structure Optimization
- Material Removal
Vehicle Light Weighting

Material Selection

• Increase application of 1.2GPa

-15.9kg

FUTURE APPLICATION

1.2 Gpa

Steel Matters
Demand Nothing Less
www.autosteel.org
Newly adopted 1180 Mpa Advanced High Strength Steel along with an increased usage of 980MPa allowed Nissan to reduce panel thickness and reduce BIW mass by 6% from previous Murano.
Vehicle Light Weighting

By using AHSS we are able to achieve our BIW mass benchmark.

Diagram:
- **BIW Mass (KG)**: Increasing
- **Trapezoidal Surface Area**: Increasing
- Points:
  - Competitor 1
  - Competitor 2
  - Competitor 3
  - Old Murano
  - New Murano

New Murano: 6% improvement from old Murano.
Vehicle Light Weighting

Material Selection

• Increase the YP and reduce material gage

Old Murano

New Murano

- Bulkhead Shape change
- New add REINF HINGE LWR 590 2.0
- changed material and thickness 370 t1.6-> 980 t1.6
- New add REINF SILL CTR 1180MPa t1.4 980MPa t1.4
Vehicle Light Weighting

Material Removal

• Remove any unnecessary material

- BASE-RR COMB thickness down
  \[ t=0.7 \quad \longrightarrow \quad t=0.8 \]
  ▲ 55.8g /Vehicle

- BRACE-ROOF RAIL RR
  waving shape
  ▲ 31.6g /Vehicle

- EXT-BASE RR COMB
  waving shape
  ▲ 4.2g /Vehicle

- BRACE-RR FDR
  waving shape
  ▲ 10.1g /Vehicle
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Nissan Murano Steel Grades

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## Nissan Murano Steel Grades

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HOW IT'S DONE

The 2015 Nissan Murano delivers stellar protection in small overlap crashes, but other midsize SUVs struggle with the test.
Nissan Murano Safety

The Insurance Institute for Highway Safety tested seven midsized SUV’s for 2015 model year. Murano was the best performer. The usage of AHSS was a major contributor to the IIHS Good achievement in all tests.
Achievement for Moderate Overlap is **GOOD**

Under View
Load Path
IIHS Moderate Overlap

Load distribution through the Front Side Members, Floor Rails, A/Pillar, & Sill allow for optimized structure for steel material grade & thickness selection
IIHS Roof Crush

The upper body construction minimizes the intrusion into the occupant compartment through the application of high strength steels.

- Roof strength achievement with smaller section sizes to meet visibility and roominess targets.
IIHS Roof Crush

Achievement for Roof Crush is GOOD
Side Impact

Mulit-Load path distribution through the Sill, B/Pillar and Floor cross members
Sincap Side Impact

Achievement for SINCAP Side Impact is 5 Star
IIHS Small Overlap
Achievement for Small Overlap is GOOD

Push off the barrier in the front structure
Manage energy in the Sill & A/Pillar
THANK YOU FOR YOUR ATTENTION