UNO MINDA DRIVING THE NEW **Seating presentation** busworld – South Asia - Jakarta May- 2024

UNO Minda Limited – Seating Division





Company overview (UML – SD)



UML -SD provides a complete seating solutions for automotive applications

Product : Seats for Buses, Tractors, CV's, 2W's & 3W's

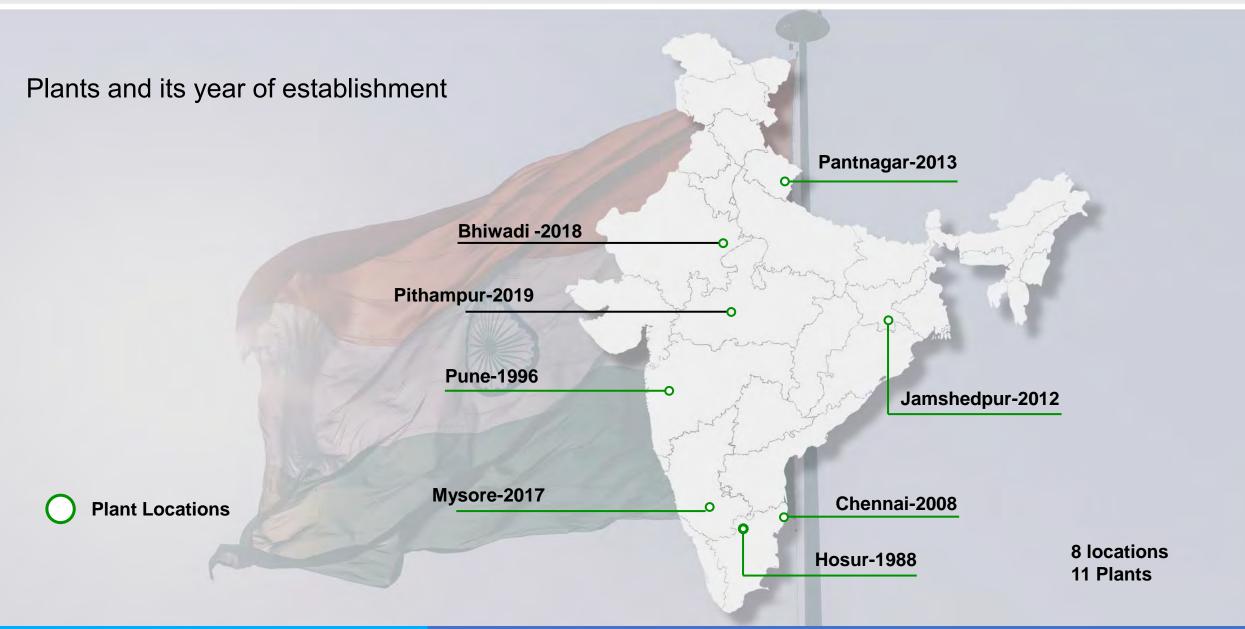
Foams & Interior modules for passenger cars

Structural components for CVs and tractors

- Facilities : 8 production plants & 1 R&D center
- Certification : IATF 16949, ISO 14001 & OHSAS 18001
- R&D: 100% In house test lab for AIS, ADR & ECE Certification;
 Registered with Department of Scientific & Industrial Research (DSIR)
 Test facility accredited by NABL as per ISO/IEC 17025:2005;
 Certified by CIRT, ICAT, GARC for Domestic and TUV, VCA for Europe

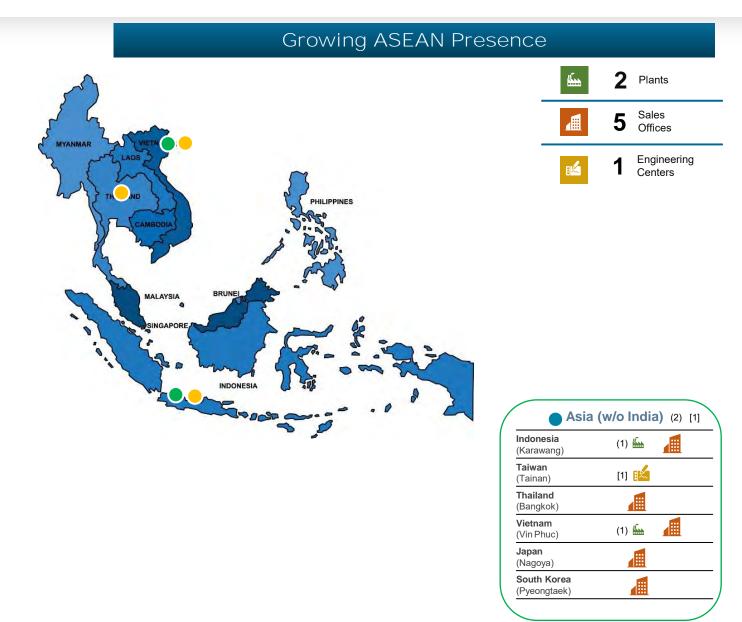
Plant Locations





ASEAN Presence





Exports locations





> Enhancing our footprint every year globally and challenging our self to be a global player in the segment

R&D capabilities



Complete design solution provider from concept to serial production with in-house capabilities of design, virtual validation, proto type, tool development, testing and homologation certification.

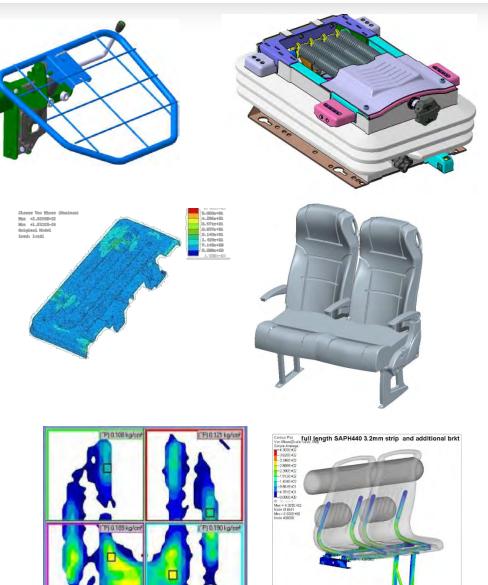


R&D facilities



Design

- Catia V5-6 R22,
- Pro E Wildfire 10.
- Autocad R25
- CAE analysis
 - Altair Hyper works V19
- Prototyping
 - CNC Foam carving
 - 3D Printing
- Testing facilities
 - Road condition data acquisition
 - Pressure mapping
 - Multi axis simulation table
- Certification facilities:
 - In house certification (AIS, ADR & ECE)
- Design, Proto & Testing engineers : 52



R&D proto and testing capabilities



3-D Printing







Vibration Test Rig



Durability Testing Capabilities





Sub-System Testing Capabilities

> 100% In house test facilities for AIS / ECE / EU / ADR / ISO / IS certification testing.

Product designs





Commercial vehicle seats



Tractor, off-road & Lawn mover



2,3 Wheeler seats and accessories













CAE Analysis



120

80 Time (Ms)

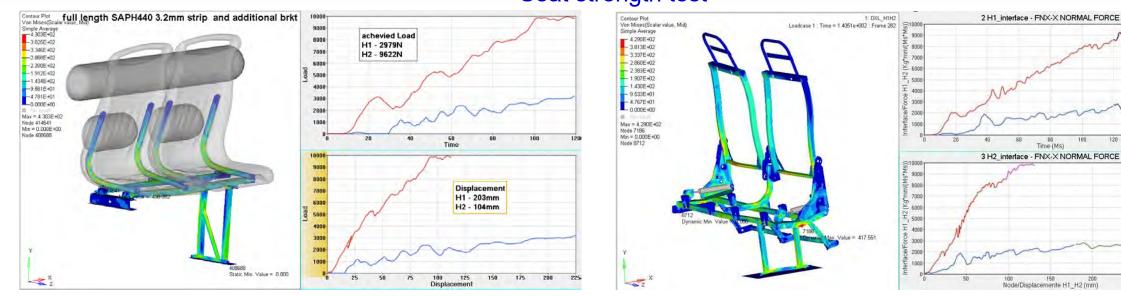
150

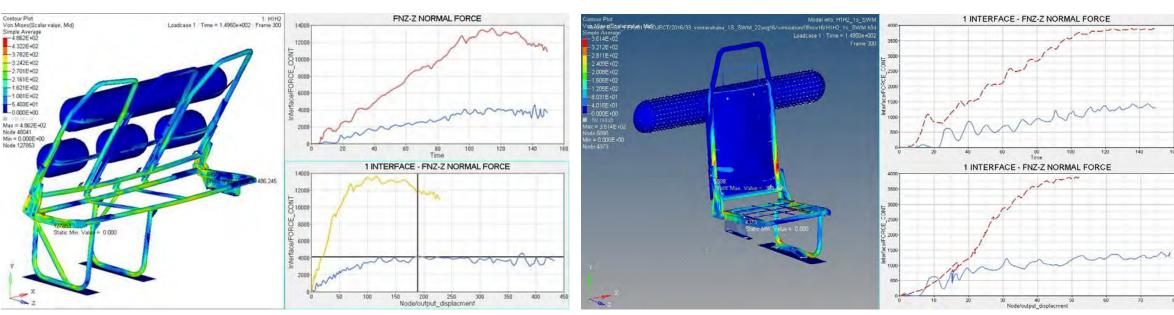
200

140

250

11/29



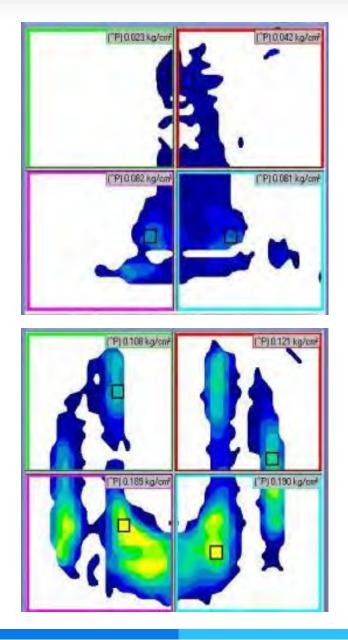


Seat strength test

Comfort evaluation – Pressure mapping







Backrest

| kg/cm² | | |
|--------|--------------|--------|
| 0.250 | | A V |
| _ | | _ |
| | 0.231 212 | |
| 0. | 192 | |
| 0. | 173 | |
| | 154 | |
| | 135 | |
| | .115 | |
| | 096 | |
| | 077 | |
| | 058 038 | |
| | 038 | |
| | 0.000 | |
| | | |
| 0.000 | | A |
| L | | |

Seat base

Regulatory tests as per AIS 023



H-Point & Dimension measurement



Seat strength test - H1 H2 test



Energy Dissipation Performance



Strength testing capabilities



Seat belt anchorage test





Grab handle pull off test

Bottle Holder pull off test





Sand bag drop test

Calf support strength test





Vertical strength test for co- driver



Vibration durability testing



Multi-Axis Simulation Table (MAST)



Durability / performance testing capabilities





Lateral load test



Seat base frame strength test



Armrest drop test



Robotic Ingress Egress test



Armrest endurance test



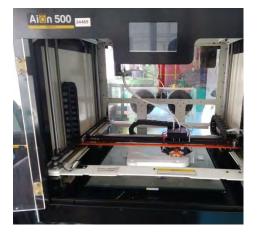
Reclining endurance test



Prototype capabilities

CNC foam carving





Rapid prototyping

Upholstery development



Modular locating table with in-house manual & robotic welding





Bus Passenger seats





Premium Seats for coaches





Futura deluxe seat with cheek support





Standard features





Optional features





- Reclining backrest with integrated cheek support
- Retractable armrest
- Plastic back cover & side cover
- Plastic leg cover
- 🥩 Grab handle
- 🥩 Coat hanger
- Plastic magazine pouch
- 3 point strap type bottle holder
- Fixed footrest with plastic pads
- Fabric / vinyl upholstery
- Dual port USB charger (optional)
- 2P lap belt (optional)
- Calf-support Mechanical / Gas assisted mechanism (optional)

Crystal deluxe seat with soft-back



21/29



Standard features





Optional features



- Reclining backrest
- Retractable armrest
- Plastic back cover with soft back on top
- Plastic side cover & leg cover
- Grab handle & coat hanger
- Plastic magazine pouch
- 3 point strap type bottle holder
- It is a position adjustable footrest with plastic pads
- Fabric / vinyl upholstery
- Dual port USB charger (optional)
- 2P lap belt (optional)
- Calf-support Mechanical / Gas assisted mechanism (optional)

Mega magnum seat with 3PSB





Standard features



Optional features



- Reclining backrest
- Retractable armrest
- Plastic back cover & side cover
- 🔮 Twin grab handle
- 🥩 Coat hanger
- Knitted magazine pouch
- 3 point strap type bottle holder
- Fixed footrest with plastic pads
- Dual sensitive 3P seat belt for enhanced safety
- Fabric / vinyl upholstery
- Dual port USB charger (optional)
- Calf-support Mechanical / Gas assisted (optional)
- Gangway LED light (optional)

Executive (910) deluxe bus seat



23/29



- Reclining backrest
- Retractable armrest
- Plastic back cover
- Plastic side cover
- Grab handle & coat hanger
- Plastic magazine pouch
- 3 point strap type bottle holder
- Fabric / vinyl upholstery
- Dual port USB charger (optional)
- Base model : 2P lap belt version
- 3P seat belt version (Optional)

New deluxe seat







Optional features





- Reclining backrest with integrated cheek support
- Retractable armrest
- Plastic back cover & side cover
- Plastic leg cover
- Grab handle with coat hook
- Plastic magazine pouch
- Plastic kick plate
- Plastic bottle holder
- Fabric / vinyl upholstery
- 2P lap belt (optional)
- Mobile holder (Optional)
- Snack Tray(Optional)
- Calf support Mechanical / Gas assisted
- Footrest (2-Point / 3Point)
- Rear USB + Type C Charger (Optional)
- Branding on the back cover
- Ambient Light(Optional)

City bus seats



Injection Moulded seat



Standard features:



Features:

- Plastic grab handle
- Light weight seats
- 🥩 Foam pads
- Upholstery at seating area
- Armrest (Optional)
- Lap belt (Optional)
- Stanchion holder (optional)

Optional features:







Details of features





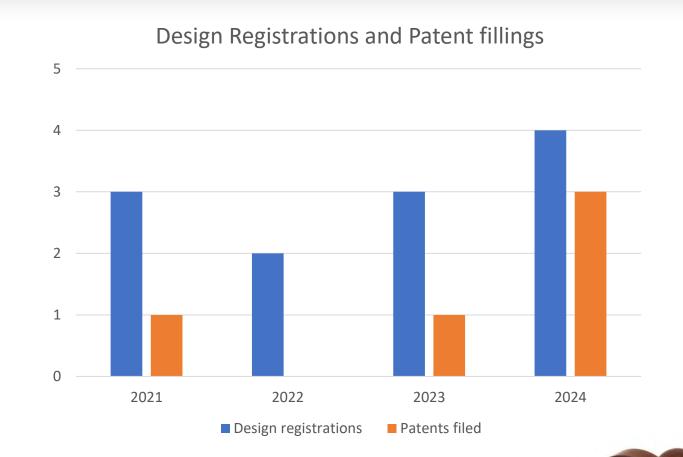
Driver seats



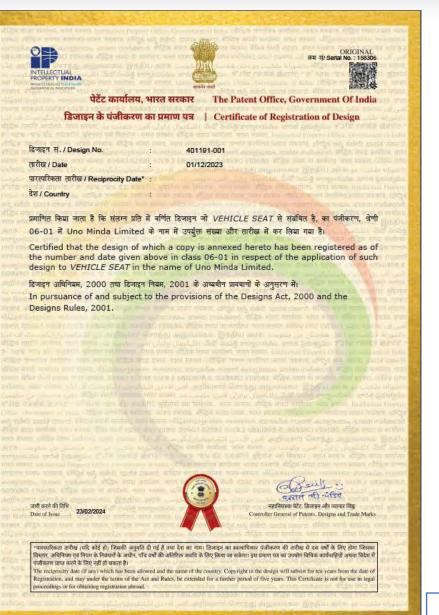


Intellectual property





Seating Division Holding Patents : 7 Design registrations: 36







DRIVING THE NEW

Thank You

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