HAMBURG CONCEPT CAR 2021

AN OPEN STUDY PROJECT COMES TO LIVE.

3DEXPERIENCE CONFERENCE – DESIGN, MODELING AND SIMULATION
ATIF AYTEKIN, DANIEL CACHEI, MATHIS WENDORFF
1. INTRODUCTION

2. CONCEPT HIGHLIGHTS

3. STYLING

4. ECO IN ACTION

5. OUTLOOK
CHAPTER 1: INTRODUCTION
PRESENTATION OF THE PROJECT.
1. PRESENTATION HAW HAMBURG
FACTS AND FIGURES

HAMBURG UNIVERSITY OF APPLIED
SCIENCES

Third largest university in Germany.

- 401 professors
- Ca. 17,000 students
- 4 faculties
- 18 departments

DEPARTMENT OF AUTOMOTIVE AND
AERONAUTICAL ENGINEERING

Wagenbauschule Hamburg since 1896.

- 42 professors
- Ca. 1,800 students
- 7 course of studies

Automotive engineering with main focus on:
   → Drivetrain & chassis
   → Construction of commercial and special vehicle
   → Construction of the vehicle body
1. PRESENTATION OF THE PROJECT HCC21 - TRADITION MEETS VISION

MASTER STUDIES
- Package and ergonomics
- Class A surfacing
- Body concepts and interior

BACHELOR STUDIES
- Basic Class A surfacing
- Drivetrain and chassis
- Vehicle design

PROJECT WORKS, THESIS, SEMINARS
- Events and conferences
  - "Sommer des Wissens"
  - "Master of Concepts and Class A"
  - "3DEXPERIENCE Conference"
- Construction of a showcar
- 125th jubilee in 2021

GRAND FINAL OF THE PROJECT

Daniel Cachei
1. MOTIVATION

Improving the quality of life of the user by existing incidents. Evolution instead of revolution. Focus on your needs.
### 1. HAMBURG CONCEPT CAR
#### FACTS AND FIGURES

<table>
<thead>
<tr>
<th>Mission</th>
<th>Focus on your needs.</th>
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<tbody>
<tr>
<td>Working title</td>
<td>ECO (Electric Comfort)</td>
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<tr>
<td>Volume</td>
<td>60,000 units p.a.</td>
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<td>Launch</td>
<td>2025</td>
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<tr>
<td>Price</td>
<td>39,000 €</td>
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<tr>
<td>Level of automation</td>
<td>Level 4</td>
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#### Body
- **Body shape:** MPV
- **Doors:** 5
- **Seats:** 4
- **Empty weight:** V1: 1825 kg, V2: 1975 kg
- **Permissible total weight:** max. 2625 kg

#### Drivetrain
- **Power unit:** 1x PSM, front engine
- **Power:** 155 kW
- **Battery:** Lithium ion, V1: 60 kWh, V2: 90 kWh

#### Performance & consumption
- **$v_{\text{max}}$:** 180 km/h
- **Torque:** ca. 350 Nm
- **Consumption (WLTC):**
  - V1: 15.70 kWh/100km
  - V2: 16.21 kWh/100km
- **Range (WLTC):**
  - V1: 344 km
  - V2: 500 km

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Daniel Cachei

HAMBURG UNIVERSITY OF APPLIED SCIENCES
CHAPTER 2: CONCEPT HIGHLIGHTS
MODERN TECHNOLOGY AND INNOVATIVE SOLUTIONS.
2. CONCEPT HIGHLIGHTS: INTERIOR SPACE

**Competition**

**Exterior Segment**
- BMW 1er
- Audi A3
- Ford Focus

**Interior Segment**
- Mercedes Benz S-Klasse L
- Audi A8 L
- BMW 7er

**Concept**

- **e-Co**
- **Mercedes Benz S-Klasse L**

H61-1: 1064/917mm | +137mm

L50-2: 964/960mm | +4mm

L-103: 4321mm

L-103: 5287mm | -966mm
2. CONCEPT HIGHLIGHTS: ZERO-GRAVITY SEAT

- Seat with integrated belt
- Extended foot space
- Real zero-gravity seating position

1. Drive mode
2. Entertainment mode
3. Office mode
4. Relax mode
CHAPTER 3: STYLING
DESIGN OF THE EXTERIOR AND INTERIOR.

Live Demonstration in ICEM Surf
3. DESIGN PROCESS – EXTERIOR

1. Manual sketching phase

2. Exploring basic shapes in ICEM Surf

Mathis Wendorff
3. DESIGN PROCESS – EXTERIOR

3. Concept detailing  4. Basic Surface Freeze  5. Final Class-A model

Mathis Wendorff
Final Class-A model as presented in ICEM Surf
3. DESIGN PROCESS – INTERIOR

Mathis Wendorff

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3. DESIGN PROCESS – INTERIOR

1. First wireframe model
2. Quick surfaces in Catia IMA
3. Final wireframe model
4. Freeze concept surfaces
5. Freeze main surfaces
6. Final Class-A Model

Mathis Wendorff
3. DESIGN PROCESS – INTERIOR FINAL

Mathis Wendorff

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CHAPTER 4: ECO IN ACTION
A DAY IN A LIFE
Driving route: 520km mostly Autobahn

Start: HAW Hamburg

Autobahn: Preparing presentation, Skype meeting, checking Emails

Charging break: Charging battery in Göttingen

Autobahn: Nap

Autobahn: Entertainment

Destination: 3DExperience Darmstadt
4. ECO IN ACTION: INGRESS
4. ECO IN ACTION: INGRESS

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4. ECO IN ACTION: INGRESS
4. ECO IN ACTION: INGRESS
4. ECO IN ACTION: AUTOMATED DRIVING
4. ECO IN ACTION: OFFICE MODE CO-DRIVER
4. ECO IN ACTION: RELAX & MEDIA MODE -SKY-SCREEN
4. ECO IN ACTION: RELAX & MEDIA MODE - SKY-SCREEN
4. ECO IN ACTION: OPERATING RELAX MODE DRIVER

Atif Aytekin

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4. ECO IN ACTION: OPERATING RELAX MODE DRIVER
4. ECO IN ACTION: ARRIVING IN DARMSTADT

Atif Aytekin
CHAPTER 4: OUTLOOK
WHAT`S AHEAD
4. OUTLOOK

Hardware: Interior mock-up

Software: Simulation

Construction of a showcarr

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HAMBURG UNIVERSITY OF APPLIED SCIENCES
4. OUTLOOK

Stay tuned and keep informed!
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