The body in white of the New FAW-Volkswagen C-TREK

Lightweight design using steel

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Agenda

- Introduction
- Exterior styling
- Package concept
- Body-in-white
- Design principles
- Vehicle integration
- Summary
Introduction

History of the Bora as technical base of the C-TREK

- Three real generations
- Five styling changes
- Overall about 1.8 Mio. cars built
- About 6% market share* in China

* A-main sedan segment
Introduction

Position in the product range

Jetta  Bora  Sagitar
Introduction

Key features

SUV styled off road body kit

progressive emotional styling

maximum space and versatility

panoramic sunroof

C-TREK Discover Life

Station wagon character and SUV style
Package concept

Comparison  Bora vs.  C-TREK
Body-in-white

Materials used

- 160MPa: Mild steel
- 160-340MPa: High-strength-steel
- 420-1000MPa: Advanced-high-strength steel
- > 1000MPa: Ultra-high-strength-steel, hot formed
Body-in-white

Materials used

Modern steel grades allow to reduce the sheet thickness

Δ Weight -7%
Design principles

Door sill

- Superposition of requirements from front and sidecrash
- Two sections system
Design principles

Sidecrash B-Pillar/roof frame/door sill

- A- and B-pillar made of ultra-high-strength steel
- Hot formed
Design principles

Roof rail

Complete redesign of the roof rail in Bora III

- Improve front and side crash performance
  - Two shells for improved bending stiffness in side crash
- Provide design space for curtain airbag
Design principles

NVH

NVH design
- Torsion and bending structures
- Torsion structure A-pillar
- Torsion structure B-Pillar
- Torsion ring at C-Pillar
- Torsion structure D-Pillar
Design principles

NVH

panoramic sunroof
Vehicle integration

Modern CAE-methods used beside crash and stiffness...
Vehicle integration

...also for aerodynamics
Vehicle integration

Aerodynamics

reduce aerodynamic drag using:
• roof spoiler
• side flaps
by avoiding undefined separation of the airflow in the rear end
Summary

C-TREK
• Modern SUV-like styling
• New type of car in the A-segment for FAW-Volkswagen

Lightweight design
• using ultra high strength steel and
• optimizing geometry, shape and connections between the single parts and subassemblies
  lead to a weight reduction of more than 7%
Thank you