Data Model for the Exchange of Geometrical Information

Version 1.0

VDA AK CAD/CAM
WG Car Electric
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Overview

• The Geometry model is composed of several views:
  – harness in the car, on the form board, …
  – a 2D geometry is always associated unambiguously with a 3D geometry

• There is a basis topology (nodes, segments, part usages, attributes) where all views are related to
  – It is possible to exchange the basis topology, only (without view information)

• The 3D geometry is divided into geometric modules
  – geometric modules separate the harness into partitions defined by a configuration
  – a geometric module is assigned to exactly one zone and exactly one harness

• 2D drawings may contain several configurations (150% view) and may exceed zone limits
  – Basis of contract for manufacturing
Harness Topology and Configuration
Communality Packages

Harness_geometry

Geometry_module

Zone

Geometry_module

Zone

Geometry_module

Main harness
Communality Packages and Dimensional Drawings

Car 3D geometry

Harness geometry

Geometry_module

Geometry_module

Geometry_module

Drawing_section

Drawing_section

Drawing_section_placement

Drawing_section_placement

Drawing_section_placement

Harness_drawing

Harness_drawing

Dim. Drawing E70 RL

Dim. Drawing E70 LL
Topology vs. Geometry

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Fixing
Wire Protection
Cable conduct
Splice

Transformation

Part_occurrence_view_item

Part_occurrence

Topology_Node

Topology_Segment

additional small Segment

additional node, unstitching the segment

Topology_Node

Topology_Node

Topology_Segment

Topology_Segment
Assembly (1)
Placement as a single object

Transformation

Part_occurrence_view_item

Part_occurrence → Part_reference
part number of the assembly
Assembly (2)
Placement of the individual components

e.g. antenna wire

Transformation

Part_occurrence_view_item

Part_reference

Part_occurrence

Assembly_specification

Part_reference

Part_occurrence

Transformation

Part_occurrence_view_item

Part_reference

Part_occurrence

part number of the assembly
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