/ About fleXstructures

The Company

fleXstructures is specialized in developing and distributing innovative high-end technology, developed in cooperation with Fraunhofer research. The company has exclusive, worldwide distribution rights of the IPS software portfolio.

The company collaborates in common research projects in the field of numerical simulation with Fraunhofer Institute for Industrial Mathematics ITWM in Kaiserslautern, Germany, Fraunhofer-Chalmers Centre in Gothenburg, Sweden, and with various industrial partners.

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/ The Software

What is IPS Cable Simulation?

/ Leading technology worldwide for the simulation of flexible parts such as wires, wiring harnesses and hoses
/ A tool considering realistic, physically correct material parameters and gravity
/ Real time simulation on a standard computer
/ Successfully benchmarked by various companies in different industrial domains

Who uses IPS Cable Simulation?

/ Automotive OEMs and their suppliers
/ Aerospace industry
/ Heavy duty industry, mechanical engineering companies, etc.

The Software is integrated into product processes of leading automotive companies such as Audi, Ford, Hyundai, Toyota, Volkswagen, Volvo.

IPS CABLE SIMULATION

/ Services

Engineering Projects

Identifying causes for damaged wires and hoses and efficient troubleshooting is extremely difficult.

We provide engineering services, diagnostics, troubleshooting and damage analyses for achieving functional reliability and product quality using IPS Cable Simulation.

Trainings and Workshops

We offer basic trainings for beginners and expert trainings for experienced users. In customized workshops, we support users working with IPS Cable Simulation in their specific domain.

Measurements of Material Properties

Precise simulation results are based on appropriate material properties. We carry out measurements for stipulating material parameters of wires, wiring harnesses and hoses.

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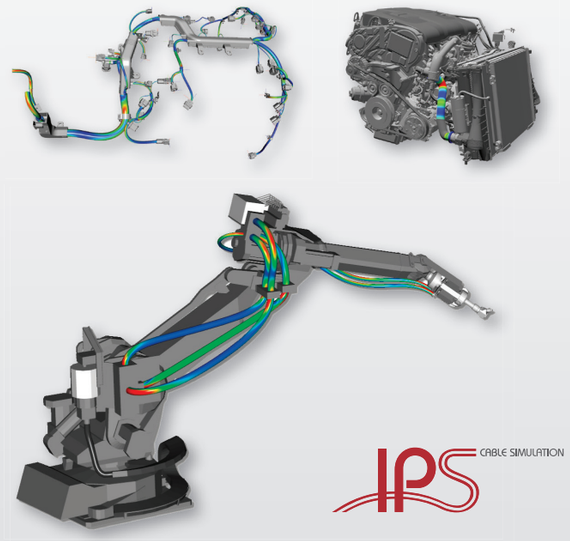
IPS Cable Simulation

Design Optimization, Virtual Assembly and Digital Mock-up of Cables, Wiring Harnesses and Hoses



In cooperation with

Fraunhofer ITWM

FRAUNHOFER CHALMERS
RESEARCH CENTRE FOR INDUSTRIAL MATHEMATICS

/ Process Optimization

IPS Cable Simulation – one tool for complete product processes

/ Design concept and optimization
/ Virtual assembly
/ Digital mock-up

Reduction of cost and time

By using IPS Cable Simulation, validated results regarding flexibles and related parts are achieved early in the product process. This leads to great savings in terms of time and money due to less prototyping and iterations.

Quality improvement and quality assurance

Applying the software in design, virtual assembly, DMU processes and for troubleshooting results in higher product quality and improved durability of flexible parts.

Interdisciplinary cooperation

IPS Cable Simulation serves as a common fast decision platform bringing together different divisions of a company in all phases of the product process. This helps detecting flaws and assures product quality.

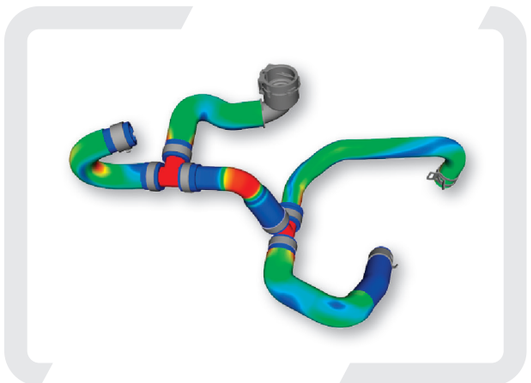
/ Design Optimization

How to find optimum routings, lengths and shapes for wires, wiring harnesses and hoses

In design processes, engineers find optimum routings, lengths and shapes for flexible components interactively by applying IPS Cable Simulation.

Key features and benefits

/ Automatic cable routing
/ Design of flexible parts with or without predeformation, interactive optimization of routings and lengths
/ Customized clips, kinematical clips, clip database
/ Detection of collisions
/ Optimization of motions
/ Calculation of large deformations between moving parts



Piping of cooling hoses with clips and visualization of stresses

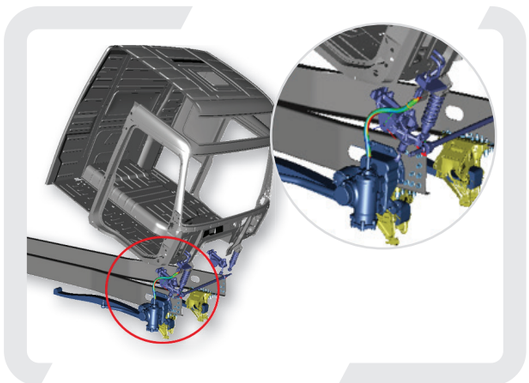
/ Virtual Assembly

How to install flexible parts without causing damages or stresses during assembly processes

In virtual assembly processes, mountability and functionality of flexible components are verified interactively with IPS Cable Simulation.

Key features and benefits

/ Feasibility tests regarding mountability
/ Analyses of constructed spaces
/ Motion analyses of flexible components
/ Adjustment and interactive optimization of flexible parts (e. g. determination of the wire length needed for the assembly process)
/ Tests of incorrect fittings



Stress on supplying hose of a driver's cabin while tilting and envelopes of needed installation space for variations of length and fastening

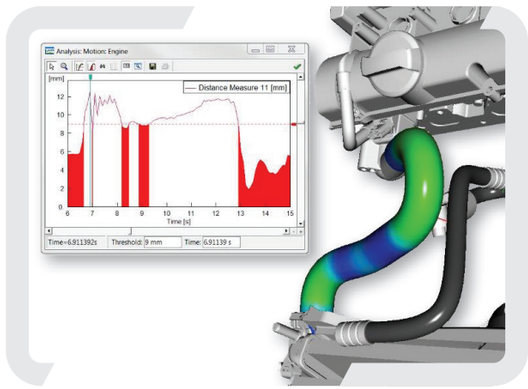
/ Digital Mock-up

How to reduce the number of physical prototypes

Applying IPS Cable Simulation in DMU processes minimizes the number of physical prototypes. Due to physically correct simulation, maximum accuracy is achieved within a fragment of the time usually spent.

Key features and benefits

/ Design validation regarding bending radius, torsion, forces, tension etc.
/ Contact handling ("cable to cable", "cable to geometry", "self-contact")
/ Tolerance analysis
/ Swept volumes for flexibles and rigid bodies
/ Post processing and reports



Analysis of stresses on a cooling hose