



# KOMPAS-3D

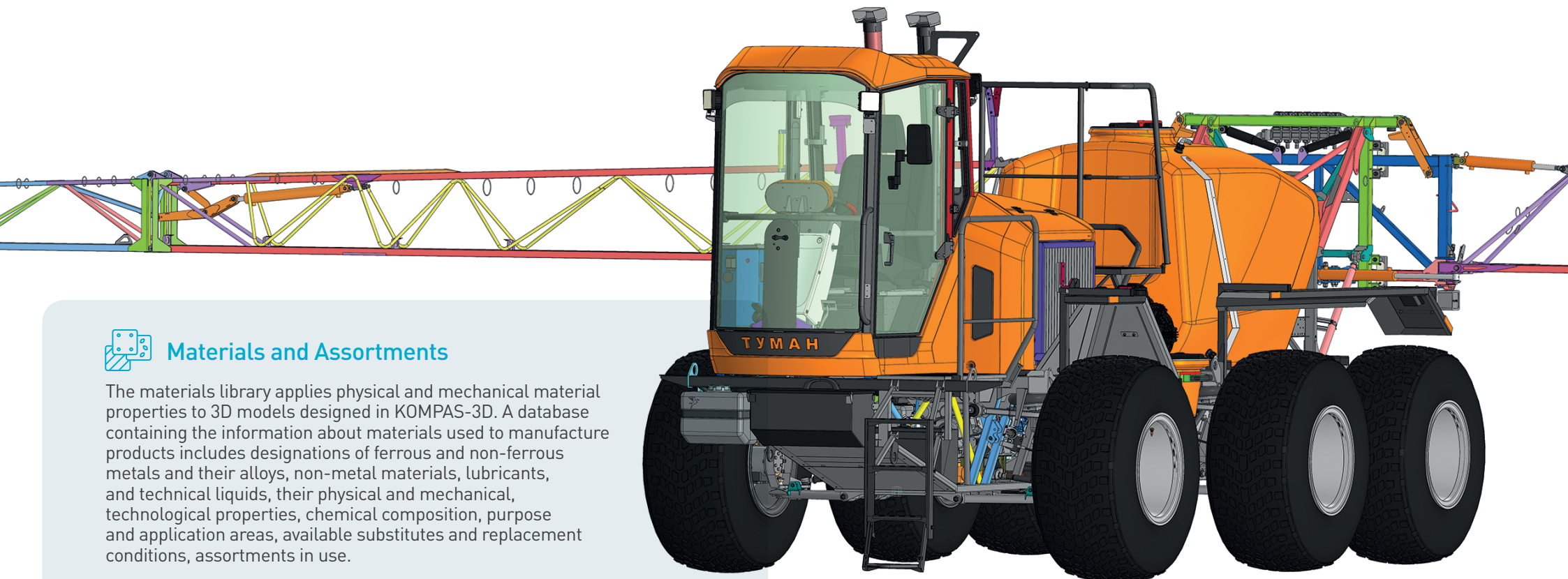
**KOMPAS-3D** is widely used for product design in various industries including aerospace, automotive and transportation, agriculture, energy, oil and gas, chemical industries, electronic equipment, instruments and components, shipbuilding, industrial machinery and heavy equipment, rail transportation, metallurgy, industrial and civil construction, consumer goods, etc.

The foundation of KOMPAS-3D is its own geometric kernel C3D®, created by C3D Labs (part of ASCON), and its own software technologies. The C3D kernel is already operating on the Linux platform.

**KOMPAS-3D** also supports the method of top-down collaborative product design and contains tools similar to WAVE and Skeleton technologies: copying geometric objects with "freezing" of associative connections, tracking and managing changes during collaborative work, layout geometry, etc.

## Why do users and managers choose KOMPAS-3D?

- 35 years on the market
- Lower Total Cost of Ownership
- Perpetual licenses
- Import-independent, own geometric kernel
- Industry-specific focus
- User-friendly interface
- Built to easily create, view, and edit engineering documentation
- Optimal functionality
- Automation of specific tasks
- High productivity
- Rapid and continuous advancement in system development
- Comprehensive and extensive automation capabilities
- Built-in tools for FEM, CFD, CAM



### Materials and Assortments

The materials library applies physical and mechanical material properties to 3D models designed in KOMPAS-3D. A database containing the information about materials used to manufacture products includes designations of ferrous and non-ferrous metals and their alloys, non-metal materials, lubricants, and technical liquids, their physical and mechanical, technological properties, chemical composition, purpose and application areas, available substitutes and replacement conditions, assortments in use.



### Equipment: Pipelines 3D

A specialized application for the automation of pipeline design routine works. The library is intended for use in machine building areas and for utility network design. This add-on allows you to create piping layouts, arrange pipeline elements, use different insets and couplings, and edit pipe diameters and thicknesses.



### 3D shafts & mechanical gears

This application automates the design and construction of three-dimensional models of shafts, bushings, and mechanical transmission elements in the KOMPAS-3D environment. It enables fast construction of multistage shafts, including structural elements such as holes, splines, and keyways.



### Mechanics: Springs

The application allows you to perform design and verification calculations of compression, tension, and torsion springs, as well as Belleville, conical, and shaped springs. Drawings and 3D models are automatically generated based on the calculation results.



### Equipment: Steel Structures 3D

The application is intended to automate the design process of metal constructions from metal rolling profiles. The library is intended for use in machine building areas and for steel frameworks design. It allows you to create frameworks based on the trajectories and the selected profiles.



## APM FEM

This application performs quick calculations for solid objects in the KOMPAS-3D system and visualizes the results of these calculations. This set of functionalities allows you to model a solid object and comprehensively analyze computational model behavior under different effects in terms of statics, natural frequencies, stability, and thermal loading.



## Fastening Connections

This module helps you create a set of fasteners and place it in the assembly. The main features of the application are: creating detachable bolted and screw connections, managing the composition of sets of fasteners in the assembly, fasteners positioning in the assembly unit, selecting bolt and screw length based on thickness and composition of the compound, choosing corresponding elements (washers, nuts) for a bolt or screw.



## KompasFlow

KompasFlow has a simple interface for express analysis of the product helping to determine the forces and moments acting on a product, the flow structure inside or around it. This add-on allows you to model a single component gas flow, fluid flow, heat conduction, and natural convection with consideration of radiative heat transfer. It supports parallel computing on a single multi-core processor.



## Animation

The Animation add-on performs motion simulation of 3D products developed in KOMPAS-3D. The add-on simulates real-world motions of products and their component parts and records them as a video in AVI format. Automatic collision detection of parts during the motion analysis helps prevent design errors. A variety of types and parameters of part motions are available, such as velocity, rotation frequency, and duration.



## Unwrap Application

This application is intended to automate the design of dust, gas, and air flues, pipelines, and similar parts of sheet material. This add-on automates labour-consuming calculations and constructions and considerably accelerates the speed of working drawings creation for blanks of such parts. The Unwrap application also allows to create unwrap drawings of selected units with specified precision, calculate product mass, saving coordinates of curves to text files.

## The main types of 3D modeling in KOMPAS-3D

### SOLID MODELING:

achieved through shape-forming operations (extrusion, rotation, sectional operations, etc.) and shape-modifying operations (fillets, chamfers, holes, slopes, etc.).

### SURFACE MODELING:

generating model geometry based on surfaces (which can include linear, conical sections, along curves or by points, and along paths, among others); support for G0, G1, and G2 surfaces.

### SHEET MODELING:

this method is used for modeling sheet metal parts employing bending or stamping methods, followed by creating flat patterns.

### OBJECT MODELING:

focuses on modeling assemblies using ready-made standard industry components, such as fasteners, cable channels, hoses, and metal structures.



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