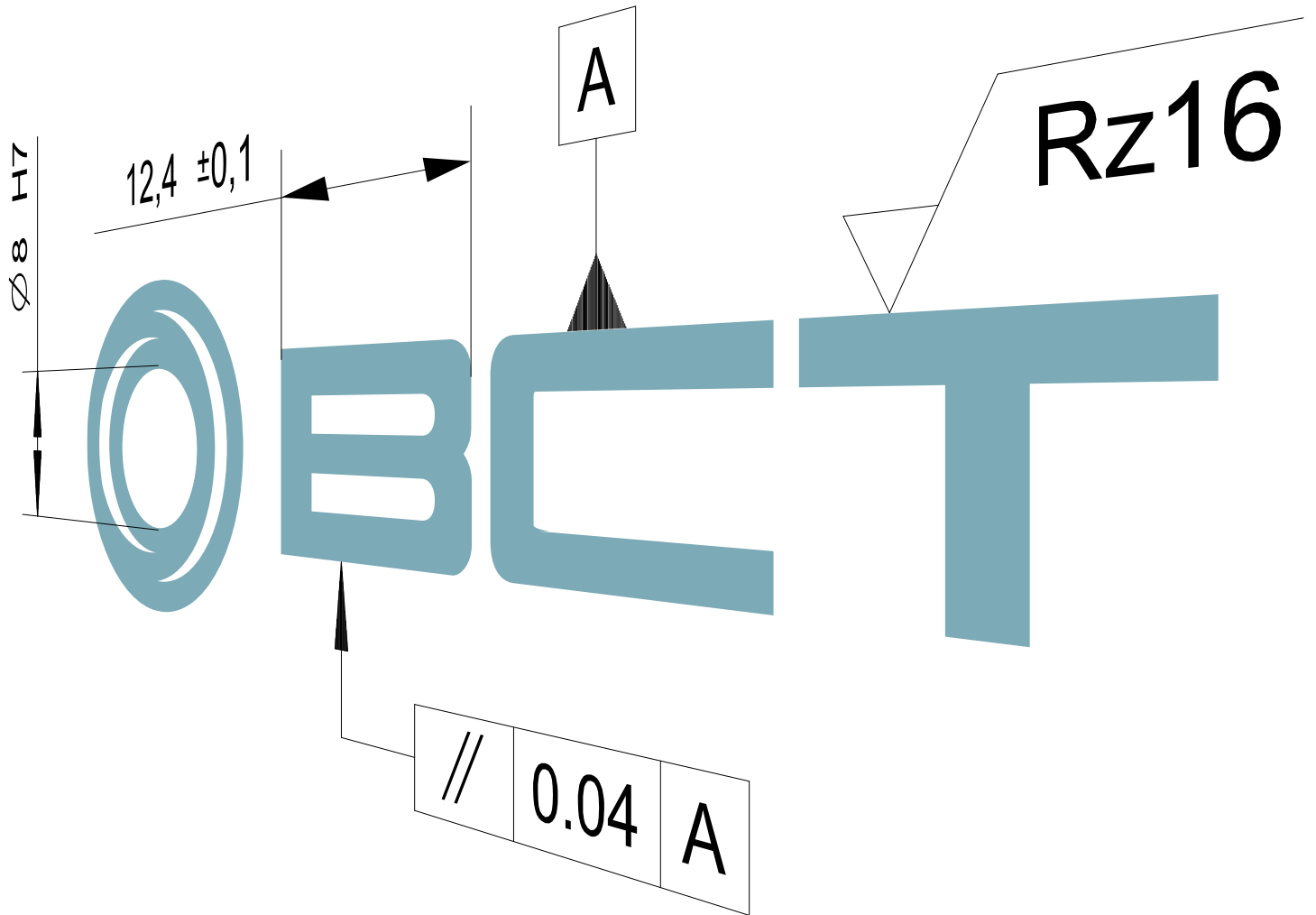# MODEL BASED
DEFINITION

MODEL BASED
DEFINITION

The use of Model Based Definition enables you to completely replace 2D drawings. This brings several advantages: cost reduction, reduction of rejects and rework, improved quality.

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Increasing market requirements

Companies in the mechanical engineering and other sectors are facing a number of challenges in development and production, which are being intensified by rapid technological change, the trend towards smart networked products and the digital transformation of business models.
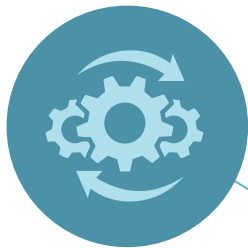
Engineering processes

They need to automate their engineering processes to a greater extent in order to speed up product development and production, shorten time to market and reduce costs.

Process consistency

They need to use their digital information more consistently throughout the process in order to avoid errors caused by incon) sistent data and generate more output with less engineering effort.

Product optimization

Rising wage and material costs are forcing them to optimize their products, minimize the costs of subsequent changes and produce fewer rejects.

Demographic change must be anticipated and the know-how of experienced engineers must be captured so that it can be passed on to younger colleagues in a structured form.

GOALS

For many manufacturing companies, the most important goal is to speed up the time to market. The desire to avoid downstream development delays and the associated costs is also one of the most frequently cited goals. Your improvement efforts should help to counteract the industry trend of increasing product complexity.

ADVANTAGES

In an effort to produce more in less time, managers are focusing on improving design documentation to manage the entire product development process. Today, more and more are using MBD initiatives as part of this effort. Those who have already done so are realizing significant perfor) mance benefits.

All information on the 3D model

Model-based definition is the key to automating and optimizing engineering processes. The aim is to attach all information defini) tion and manufacture of a product to the 3D model and to comple) tely dispense with 2D drawings in the subsequent processes.

Enriching 3D models with product manufacturing information (PMIs) used to be a manual, relatively time-consuming process. With NX MBD from Siemens Digital Industries Software, however, it can be automated as far as possible.
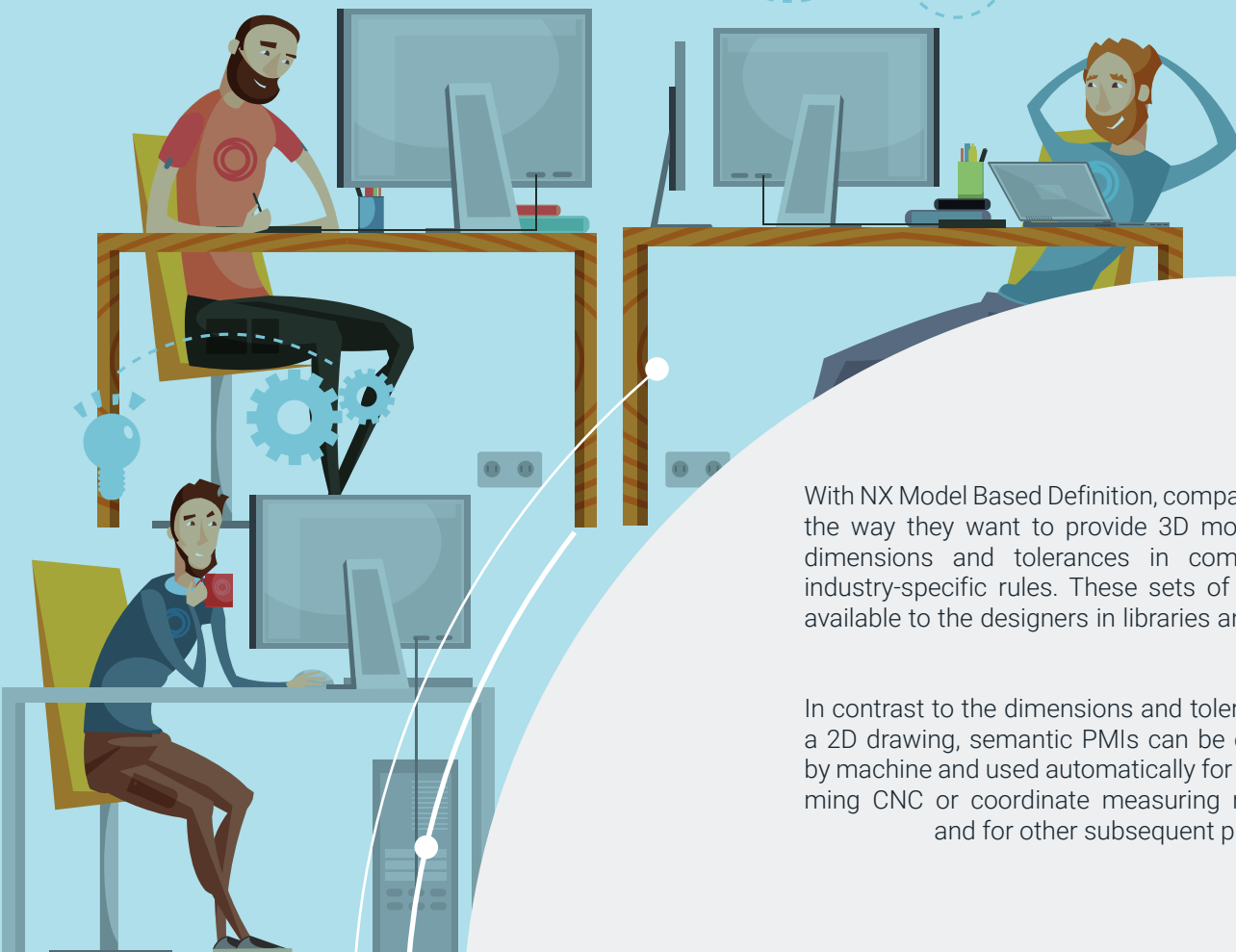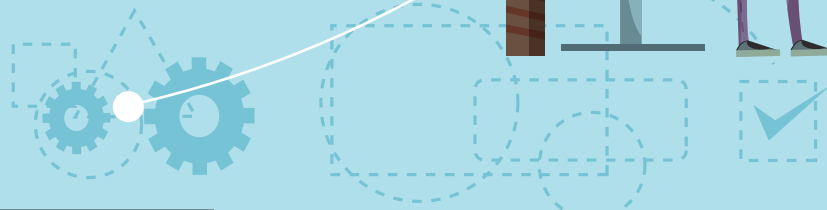
With NX Model Based Definition, companies map the way they want to provide 3D models with dimensions and tolerances in company- or industry-specific rules. These sets of rules are available to the designers in libraries and can be reused.

In contrast to the dimensions and tolerances on a 2D drawing, semantic PMIs can be evaluated by machine and used automatically for program) ming CNC or coordinate measuring machines and for other subsequent processes.

%12

CONSISTENCY

MBD is the key to digital consistency at the interface between development and production. According to the 2021 MBD Benchmark Report, users of this methodology are 12 percent faster than when creating drawings

%49
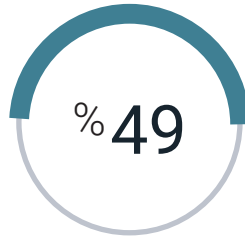
RESULTS

Organizations that do not incorporate models into their production outputs record 6.5 non-con) formities per development project, compared to 3.3 for organizations that do incorporate models, a difference of 49%.

%80

CAM PROCESS

According to studies, MBD shortens the CAM programming process by up to 80 percent. This makes it a key lever for better integration of development and production processes and a reduction in time to market.
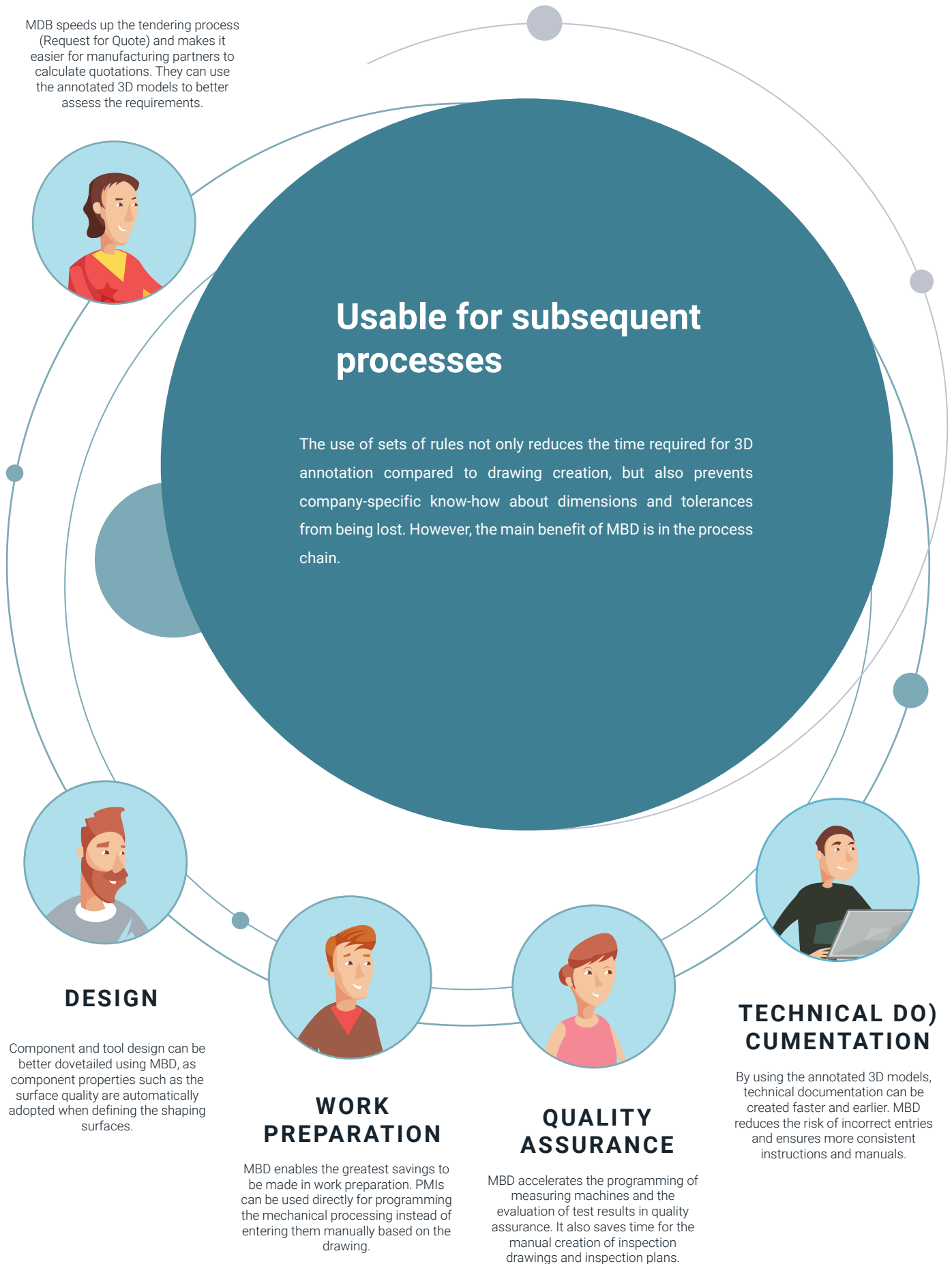
Shortening the time to market

MBD is the prerequisite for the consistent use of digital information across the entire value chain. It makes it easier for companies to build the digital thread by making the history and relationships between the information objects traceable.

INVITATION TO TENDER

MDB speeds up the tendering process (Request for Quote) and makes it easier for manufacturing partners to calculate quotations. They can use the annotated 3D models to better assess the requirements.

Usable for subsequent processes

The use of sets of rules not only reduces the time required for 3D annotation compared to drawing creation, but also prevents company-specific know-how about dimensions and tolerances from being lost. However, the main benefit of MBD is in the process chain.

DESIGN

Component and tool design can be better dovetailed using MBD, as component properties such as the surface quality are automatically adopted when defining the shaping surfaces.

WORK PREPARATION

MBD enables the greatest savings to be made in work preparation. PMIs can be used directly for programming the mechanical processing instead of entering them manually based on the drawing.

QUALITY ASSURANCE

MBD accelerates the programming of measuring machines and the evaluation of test results in quality assurance. It also saves time for the manual creation of inspection drawings and inspection plans.

TECHNICAL DO) CUMENTATION

By using the annotated 3D models, technical documentation can be created faster and earlier. MBD reduces the risk of incorrect entries and ensures more consistent instructions and manuals.

The MBD offer from BCT

BCT is a recognized expert in the automation of engineering processes. As a Platinum Partner of Siemens Digital Industries Software, we support customers in mechanical engineering and other industries on their way to the Model Based Enterprise. Thanks to our close cooperation, BCT's solutions are used in various industries worldwide. In addition to mechanical and plant engineering, these include aerospace, vehicle construction, the high-tech and electronics industries and medical technology.
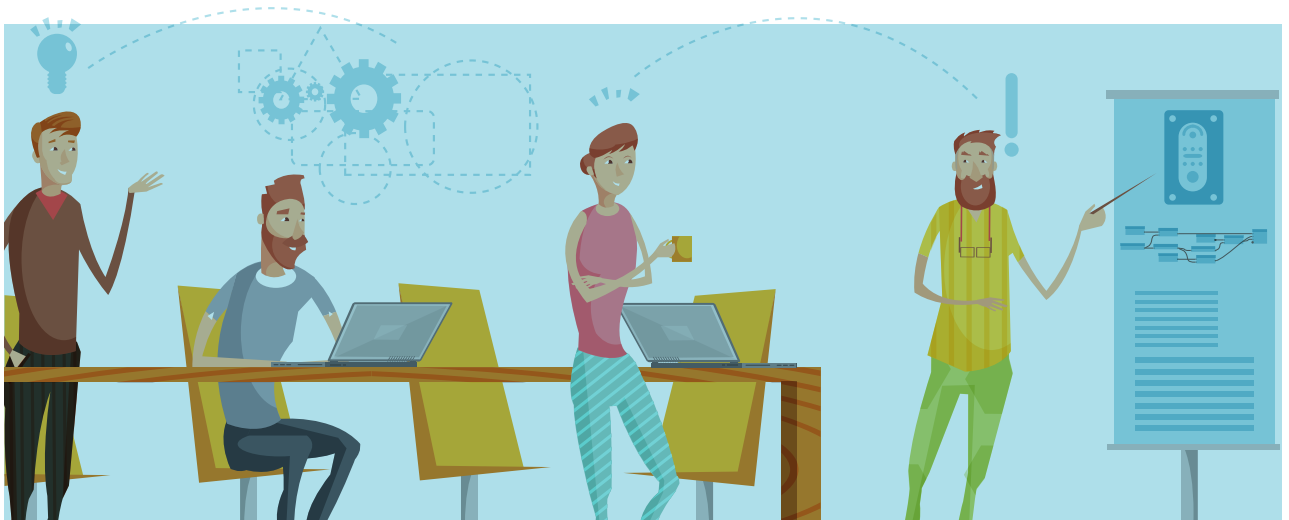
A Consulting and implementation

We support customers in the selection and implementation of CAD and PLM solutions from Siemens Digital Industries Software, including modules for the creation and provision of MBD models.

B Workshops

In workshops, we explain the benefits of MBD, identify the potential for rule sets in your company and define a roadmap for implementing the relevant tools.

C Training courses

We train users specifically in the use of NX Model Based Definition and, if required, map customer-specific expertise on dimensions and tolerances in rules and libraries.

D Webshop

In our web store, we provide industry-specific libraries with predefined sets of rules for standard-compliant dimensioning and tolerancing of components of all kinds.

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