

The 3D Creator and TeZetCAD offer an efficient solution for measuring and 3D design of tubes

Modern quality control for complex tube courses or for pre configured cable bundles require a flexible and efficient measuring technique. With the 3D Creator and the TezetCAD software this tasks can be achieved easily. Complete designing of the tubes can be directly done on the machine in the shop floor or even in the vehicle. The results can be directly transferred into the bending machine or in a 3D CAD system.



Measurement with the 3D Creator



Tube measuring direct in the car

System concept

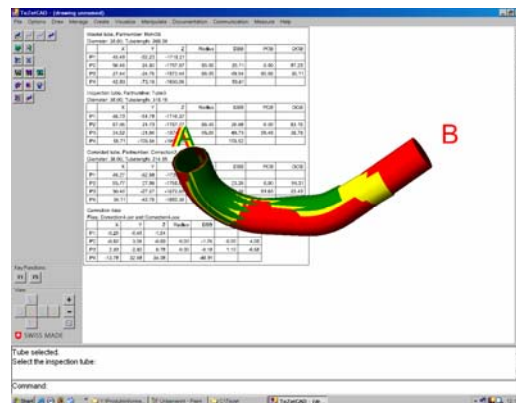
The 3D Creator is an optical measuring and tracking system which transfers the position values of the freely movable probe to the sensor unit via infrared transfer. Therefore the handheld probe is incorporated with active infrared emitters which are visible to the sensor even at a distance up to five meters. The exact positions of these emitters are recorded with the highly sensitive cameras and are transferred with modern image calculation algorithms into XYZ coordinates and the orientation vectors. This modular and compact system can be used with different individual or connected sensor units in order to increase the measuring volume. The positioning of the sensor units decides the measuring volume as well as the accuracy. This allows a high degree of freedom in defining dedicated customised solutions.

Software

TeZetCAD takes the digitised 3D coordinates and displays the CAD model of the tube on the screen in real time. It has a very strong graphic kernel, which helps in handling even very complex tubes and

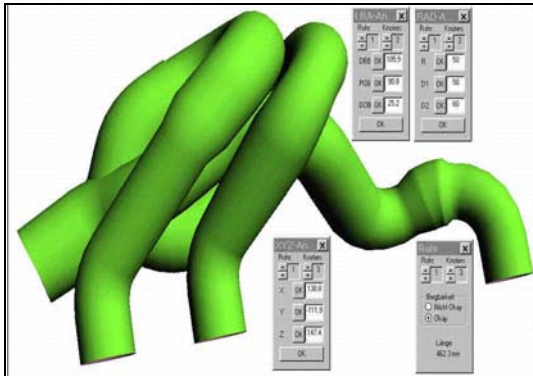


Taking the tube values

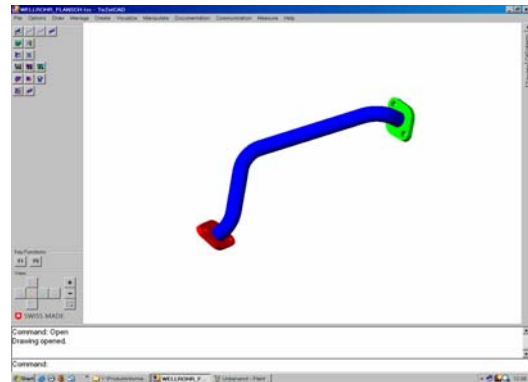


Bending values

tube courses or even complete pipe bundles. Moving, turning, zooming or scrolling the objects is possible. The three dimensional presentation of the tubes will be shown in different colours, so it is easy to differentiate different tubes and comparison between the master and the measured tube is also possible. TeZetCAD automatically calculates all the relevant information about the tube. The software can be used by icon driven menus, which are supported by many automatic features. So after each measurement automatically the xyz coordinates of the measured tube including the bending information are displayed on the screen and can be stored easily. The measured values can be printed in a tabular form or can be saved in different file formats.



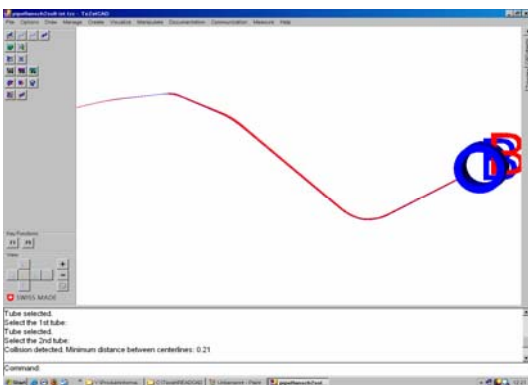
Collision analysis



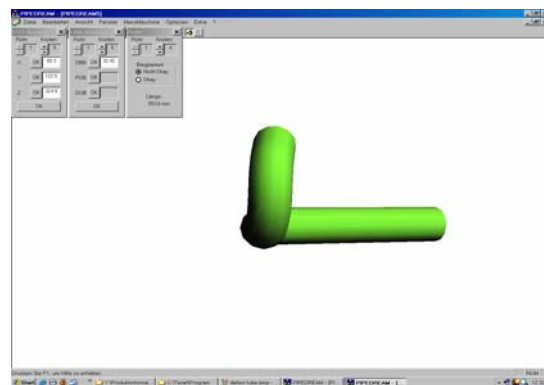
Attachment of tube flanges

Another important function is to communicate directly with the bending machine. The results can be stored in different formats as requested by different bending machines. If necessary, additional data can be easily imported. Collision detection between different tubes is predicted in advance to the production of the tubes which saves the lot of material and effort. The control of the bending process can be realized mathematically as well visually.

This software also supports measurement of tubes with varying radii. TeZetCAD automatically calculates the fixtures in the specified directions. All the necessary documentation and dimensioning is done at a single click. This software is not only for tubes but also for flanges as well.



Calculating the tube centre line



Presenting the complete tube values



Innovative Products for efficient Solutions