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TeZetCAD Measurement System

for tube measurement, automatic generation of bend correction data, quality control, and documentation

The TeZetCAD Measurement System supplies a fast and easy way to confirm that tubes have been bent to the correct specification or to automatically generate bend-correction data for tube-benders. Using either a touch probe, laser fork probe, or line laser, the TeZetCAD system is fast, powerful, easy to use, and affordable. Manufacturers can achieve a very rapid return on investment with long-term competitive advantage by dramatically reducing setup time, scrap, and quality problems.

Accurate and Cost Efficient

The TeZetCAD system is comprised of the articulated arm MicroScribe® digitizer for obtaining X,Y, Z coordinate data, and TeZet TeZetCAD software that defines master or bend-correction data. Manufacturers can rely on the TeZetCAD system to deliver quality tubes in a very short time. Lightweight, portable, and suitable for use in machine shops and on manufacturing floors, the MicroScribe MX and G2 digitizers are constructed of high quality components—solid aluminum housings, lightweight graphite links, and state-of-the-art electronics. TeZetCAD software is so easy to use that tube-bender operators without any computer knowledge have learned to use the system in under two hours.

The software runs on a highly efficient rendering engine that allows easy display, rotation, zoom, and viewing of tubes in 3D and generates highly accurate correction data in seconds.

The TeZetCAD System Lets You:

- Measure tubes as small as 1.5 mm (0.059 in) in diameter
- Measure undefined radius and multiradius tubes such as U-bends or spiral coils
- Measure various flange types
- Validate tube-bender setup and significantly reduce total setup time
- Dramatically reduce scrap
- Save time and labor, and learn to use it quickly
- Achieve fast return on investment
- Support both engineering prototyping and production, even without CAD data

The TeZetCAD system allows both experienced and novice users to increase productivity. Even difficult tubes with complex geometries including U bends and several complex angles can usually be efficiently produced once the first tube is manufactured and a TeZetCAD correction file is input into the tube-bender. TeZetCAD system can help you dramatically reduce total setup time and scrap.

Fast and Easy Five-step Process

With the TeZetCAD system's five-step process—Input, Measure, Compare, Correct, and Print—master and/or tube-correction data can be obtained from a bent tube in minutes. You can quickly and easily resolve differences in angle, feed, and rotation to significantly improve machine utilization and product yield.

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Input

TeZetCAD makes it simple to input data quickly. In a matter of minutes you are ready to compare a first article bent tube to the master data. If CAD master tube data is not available, a data file can be created by measuring your customer's master tube. (Simply click on Measure, then enter the tube diameter and bend radius.) The software displays a representational 3D tube and instructs you to take measurements starting with three points to define the tube end. It then prompts you to measure the first cylindrical segment by taking six points. Prompts continue until all sections are measured and displayed. Measurement data for entering into the tube-bender is displayed and saved as the master-tube bend data.

Measure

TeZetCAD technology is simple yet powerful. A tube with three bends requires no more than touching the MicroScribe probe to the tube at 30 points, easily accomplished in a few minutes with a touch probe or 10 measurements with a fork probe.

The Future of Tube Inspection
With TeZetCAD software, you can measure an undefined tube radius with the MicroScribe system's line laser, then compare the measurement to the master CAD data to create a bender deviation file. Alternately, you can create master CAD data from the measured tube.

Compare

Bend a tube using the master data, then use TeZetCAD to measure and compare this first article to the master data. The system analyzes the difference between the tube and the master data file and creates new bend data and a deviation data set to correct the inaccuracies of the first tube. The display will show the two colored tubes superimposed, with differences highlighted in a third color.

Correct

A menu option allows you to generate concise tables that include the master, inspection, corrected tube, and deviation data. You can quickly input correction data for angle, radius, feed, and rotation for the bender, confirm your input, and begin production manufacturing. Using this process, setup can be reduced from potentially hours to perhaps minutes.

Print

Easy report generation is key for supporting your quality initiatives, and TeZetCAD supplies printed finished-parts measurement data as a quality-control record. The data can also be used in statistical process control charts to help operators understand when to make adjustments in the manufacturing process.

About TeZet

TeZet is the recognized market leader in tube correction software. Since 1990, TeZet has continually enhanced its easy to use tube design and measuring software, developed for the sole purpose of meeting dedicated tube processing requirements.

Specifications

Software requirements

- Windows XP (Home or Professional) Service pack 2 or higher
- 128 MB memory
- OpenGL-supported graphics card (ATI, Nvidia, others)
- Serial port (or USB to serial converter)
- 2 USB ports

MicroScribe MX digitizer

- Accuracy*: <0.002 in (0.0508 mm)
- Reach: 25 in (0.63m)
- Worksphere diameter: 50 in (1.27m)
- Degrees of freedom: 5 or 6
- Connectivity: USB 2.0
- Weight: 11.8 lb (5.17 kg)

* As specified in the ASME B89.4.22 draft specifications for Effective Diameter test (spherical test)

About Immersion Corporation

Founded in 1993, Immersion Corporation develops hardware and software technologies that improve the way people interact with electronic devices. Immersion MicroScribe products are the fast, flexible way to capture 3D measurements from a physical model. The MicroScribe MX portable measurement system offers superb flexibility and metrology-level accuracy at the right price for many reverse engineering and inspection projects. The MicroScribe G2 digitizer is the ideal choice for rapid prototyping, tube measuring, and many reverse engineering projects. Nearly 8,000 MicroScribe systems have been sold worldwide

For More Information

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