

METRONOR METROLOGY

SOLUTIONS FOR THE PIPING
AND SHIPBUILDING INDUSTRY

VERSION 1.0

Measure

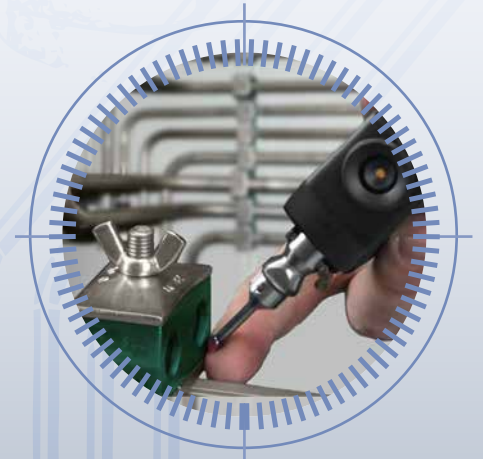
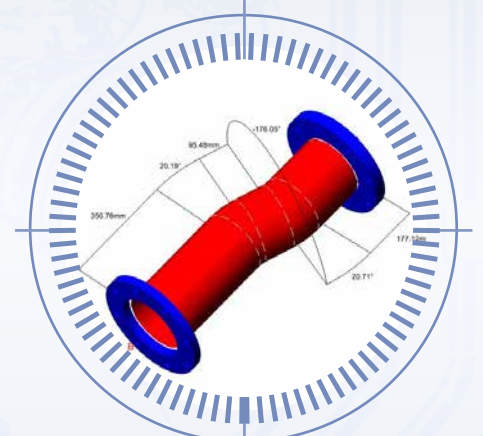
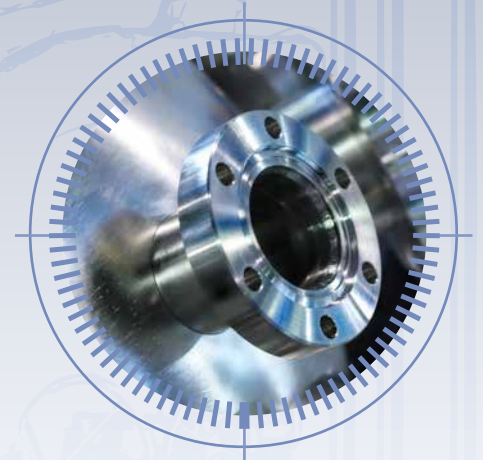
- Design Fitted Pipes
- Design New Pipe Paths
- Design Pipe Bundles
- Align Flanges
- Reverse Engineer Pipes and Flanges

Build

- Export Pipe CAD Data
- Export to Bending Machines
- Export as ISO Drawing

Check

- Quality Control of Pipes
- Springback Correction



SOLUTIONS FOR THE PIPING INDUSTRY

Metronor solutions are ideal for when fast setup, ease of use and high portability are critical. The combination of TeZetCAD and a Metronor system offers elegant solutions to improve and optimize your piping process.



MEASURE

Take your Metronor measurement system to the location of the pipes or flanges and capture the as-built conditions.

REVERSE ENGINEER PIPE GEOMETRIES

Measure an existing pipe that needs to be replaced or digitize and create the CAD twin of its geometry.

REVERSE ENGINEER FLANGES

Capture the end positions of pipes and the exact orientation in 6 degrees of freedom. Update CAD files as needed with the as-built configuration.

DESIGN FITTED PIPES

Draw fitted pipes virtually in-between flanges without having to resort to a physical frame or template. Design the perfect pipe connection in one step without having to do any rework.

DESIGN NEW PIPE PATHS

Create completely new piping paths, e.g. for hydraulic piping. Holders and connectors can be captured and the pipe can be actively guided perfectly through or into these constraints.

DESIGN PIPE BUNDLES

Design new pipes that run perfectly parallel alongside other pipes.

ALIGNMENT OF FLANGES

Recreate the flange settings from on-site measurements in your production area without having to refer to a physical template. The system will navigate you to bring the flanges into the right position and orientation.

BUILD

TeZetCAD generates all the data you need automatically through the measurements you capture. Just choose the report that best fits your task.

EXPORT PIPE CAD DATA

Export the created pipe geometries as IGS or STP files and send to the construction department.

EXPORT TO BENDING MACHINE

If you have already created the perfectly fitting pipe, simply export to a bending machine of your choice – directly from the measurement software.

EXPORT AS ISO DRAWING

In case your pipe needs to be welded, export a corresponding ISO drawing and have the production team start the work.



CHECK

Perform the regular quality and production control to make sure that everything that goes out to the customer or to the next step in the production process will fit the first time.

QUALITY CONTROL

Measure the built pipe against the original measurement data or against CAD to verify its geometry.

SPRINGBACK CORRECTION

Set up your bending machines by calculating the springback correction values of the different pipe bends and materials.



SHIPYARD SOLUTION

AN EVEN MORE PORTABLE SYSTEM

The Shipyard Solution is a type of packaging for either SOLO or SOLO Twin that was developed initially for the use on shipyards.

Since then, this plug-and-play solution has also created a lot of interest for service companies and generally all customers that travel a lot with their Metronor product.

The transport case – which can also be carried as a backpack – doubles as the working station. The only thing left to do is to insert the camera cable.

In under a minute you can start taking the first measurements, be it for reverse engineering of pipes or for a dimensional check of a finished product.



OTHER SYSTEM CHANGES TO THE REGULAR PACKAGING INCLUDE

- Exchange of the standard tripod with both magnet and vise to position the camera on walls and beams
- Exchange of standard Lightpen LP89 to the smaller model LP55 for work in smaller, cramped areas
- Additional 2-sided probe tip with a 400mm carbon fiber extension for full reach of hidden features
- Additional camera battery to make the system independent of wall power



Metronor is a privately held ISO9001 certified high-technology company headquartered outside Oslo, Norway. Metronor has developed a range of high-accuracy, large-volume, portable electro-optical coordinate measuring systems that provide excellent return on investment for its customers as well as facilitate a highly efficient dimensional management of their manufacturing processes.

Metronor Industrial Systems provides a range of measuring systems to a variety of industries worldwide, either through trusted partners or directly through offices in Norway, the US, Germany and Asia.

More information at www.metronor.com

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