





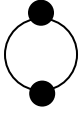
# TOMELLERI ENGINEERING

PROGETTAZIONE E FORNITURA MACCHINE ED AUTOMAZIONI

[www.tomelleri-engineering.it](http://www.tomelleri-engineering.it)

## Software TUBO Version 6 performance list

- **Measurement by laser fork:**
  - Measurement of straight tubes
  - Measurement of bent tubes measuring just the straight lengths
  - Measurement of bends (survey the bending radius)
  - Measurement of consecutive bends (absence of straight length between one bend and the other one, also called bend-in-bend)
  - Measurement by laser fork and/or electronic probe (mixed measurement)
  - Measurement Single/Double (for big tubes) and quadruple (for small tubes)
  - Measure a scaled tube
  - Possibility to change tube diameter during the measuring procedure
  - Measurement of secondary tubes welded to the main tube
  - Measurement of RCV tubes
  - Measurement of tubes having non circular section (profiles)
- **Measurement by probe:**
  - Measurement by mechanical probe
  - Measurement of straight lengths and bends same as the laser fork
  - Double / quadruple measure

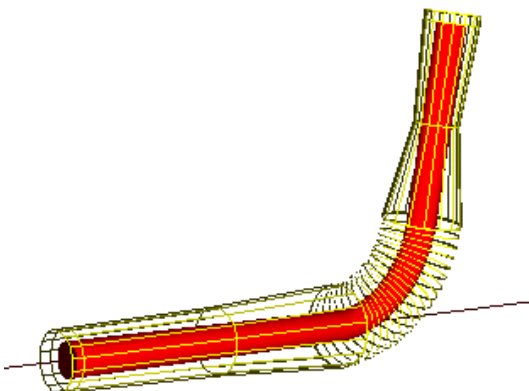
Type of measure	Action	Lay out	When?
- single	Takes just one point	 1 ↓	For normal tubes
- double	Takes twice the same point	 1 ↓ 2 ↑	For tubes having a large diameter compared to the probe
- quadruple	Takes twice 2 points	 1 ↓ 4 ↑ 2 ↓ 3 ↑	For small tubes or to measure the ovaling

- **Comparison and correction:**

TOMELLERI ENGINEERING S.r.l.  
Viale del Lavoro 12/A 37069 VILLAFRANCA (VR) ITALY  
Phone +39.045.6304744 Fax. +39.045.6303657  
E-mail: [info@tomelleri-engineering.it](mailto:info@tomelleri-engineering.it)

Legal Office:  
Via Orione 6 37066 SOMMACAMPAGNA (VR) ITALY  
Phone +39.045.8961420 Fax. +39.045.8979782  
P.IVA: 01664120233

- Comparison and correction (classic mode) linked to the CNC
- Spring-back correction (20 –120)
- **Extension:**
  - Hooking of two tubes on a common vertex or on a straight length
  - Measurement of tubes having unlimited length with function of hooking by three reference spheres
  - Symmetry of a tube
  - Possibility to measure a scaled tube
- **Archive:**
  - Creation of Tubes and Gauges archives
  - Automatic research in archive
  - Creation, modification and printing of models in:
    - Cartesian coordinates
    - Polar coordinates
    - Double Cartesian coordinates
    - Calandering both in setting and in acquiring
- **Transmission:**
  - Export via ethernet, via serial line RS232
- **Electronic Gauge:**
  - Graphic representation of the measured tube
  - Graphic superimposition of a tube on its gauge (flanges/holes/small pipes included)
  - Manual and automatic positioning of the tube inside the Gauge
  - Data regarding the axial and radial shifting of:
    - Beginning point of a tract
    - Medium point of a tract
    - Ending point of a tract
    - Medium point of a curve
    - (this for each program = tract + curve)
    - Flanges, holes, small pipes on the examined tube
  - Setup of Gauge's tolerances for each of the above mentioned points with graphic visualisation of the stated tolerances
  - Rotation, shifting, and dynamic zoom
  - Printing of the graph and of the obtained data



- **RCV Tubes:**

- Measurement of tubes having non constant bending radius and variable rotation along the bend without straight lengths.
- Measurement RCV mixed with parts having variable bending radius and parts having constant bending radius
- Setting of RCV and RCV mixed tubes from file
- Automatic correction of the bending program for RCV and RCV mixed tubes
  
- **Tubes having non circular section (profiles):**
  - Measurement of tubes having non circular section (profiles)
  - Automatic correction of the bending program
  
- **Flanges and small pipes:**
  - Measurement of flanges welded to the main tube with measurement of the centre of the flange and its orientation.
  - Measurement of the phase of the holes of the flange in relation to the selected plane
  - Measurement of small tubes fixed to the main tube with measurement of the position of the centre of the end point of the small tube and its orientation.
  
- **Others:**
  - Alignment: possibility to obtain the data of the measured tube regarding (aligned) a master tube that is already in memory, to an external reference or to a drawing (manual and automatic procedure).
  - Creation of material archive for the spring-back compensation to apply to the bending program.