

VTUBE LASER

FEATURES

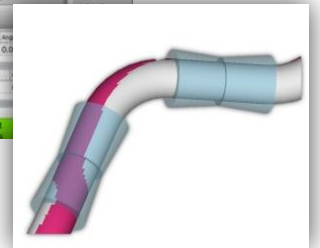
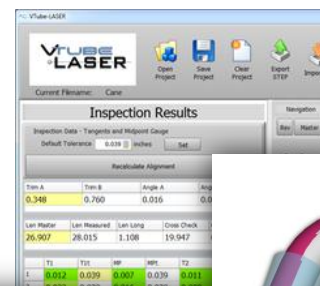
Import solid model data from STEP or IGES files generated by CAD packages to create MASTER data.

Measure tube shapes using laser technology for comparison against master data or to reverse-engineer from existing parts.

Fully qualify tube shapes with inspection reports that contain tangent, midpoint, end angle deviations all compared to tolerance. Quickly verify a part shape by viewing the inspection result with shades of green (pass) or red (no pass).

Display rendered image of measured tube, best-fit tube, and master tubes on the screen at the same time.

Connect to and correct CNC benders.



INSPECTION DATA
Use this data to qualify a part

Straight	T1d	T1t	MPd	MPt	T2d	T2t
1	0.010	0.039	0.004	0.039	0.011	0.039
2	0.017	0.039	0.011	0.039	0.005	0.039
3	0.005	0.039	0.004	0.039	0.004	0.039
4	0.004	0.039	0.003	0.039	0.007	0.039
5	0.009	0.039	0.009	0.039	0.009	0.039

BENDER ADJUSTMENTS
Add this data to the bender data to correct the shape of the tube

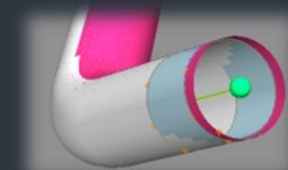
Bend	Length	Rotation	Angle
1	-0.990	0.0	0.0
2	-0.017	-0.1	-0.1
3	0.008	0.1	-0.3
4	0.009	0.0	-0.2
5	-0.768		

Tube measuring software for FARO laser and tactile measuring centers

This is the application tool designed exclusively for **tube measurement, qualification, and bender correction.**

VTube-LASER connects directly to FARO Laser ScanArms using the FARO laser line probe technology to scan tube shapes faster with greater accuracy.

Correct your network of CNC benders. Setup and correct a bender in just a few minutes. Transfer of correction data takes a few seconds.



FARO LASER Compatible



VTube-LASER is designed to be used exclusively on FARO ScanArms like the Quantum, Platinum, Fusion, Titanium, and Advantage arms.

VTube-LASER uses v2 or v3 Laser Line Probes



FARO TECHNOLOGIES

Our software supports FARO arms exclusively and is distributed exclusively through FARO Technologies.

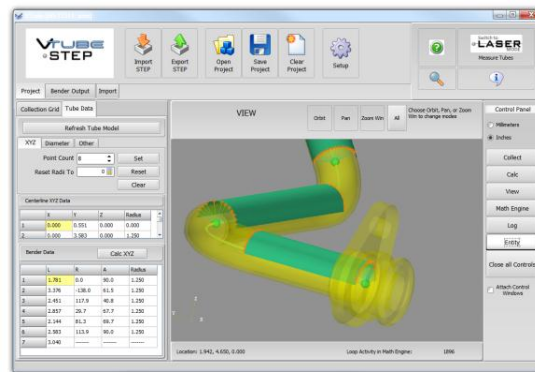
IMPORT SOLID MODEL

Import from any solid model CAD package using the universal STEP or even IGES format.

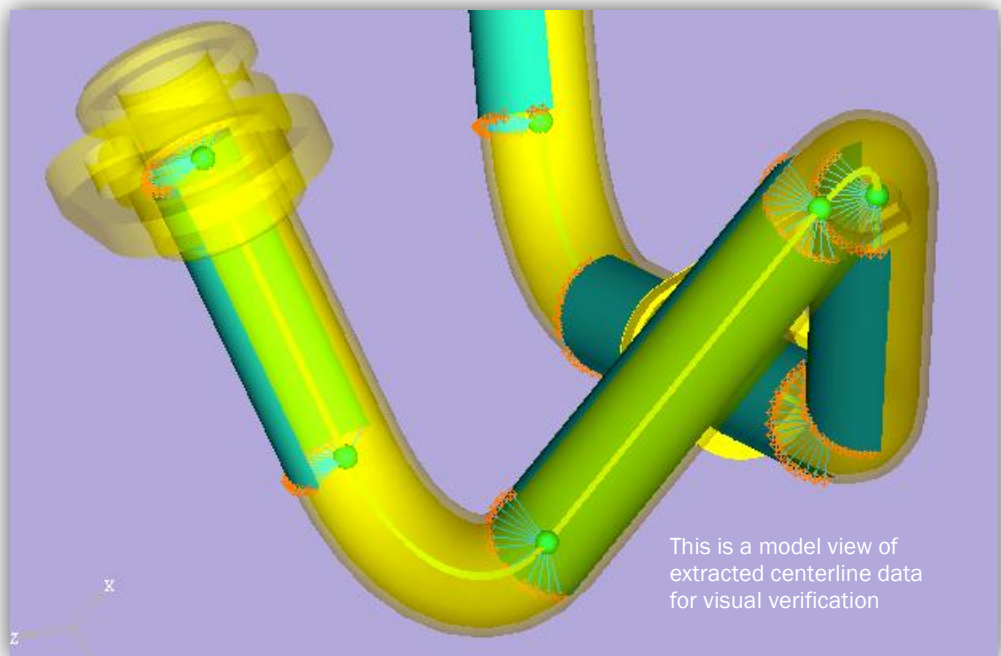
EXTRACT CENTERLINE DATA

Extract centerline data to build MASTER data for inspection. View the results of the extraction in the viewport using transparency.

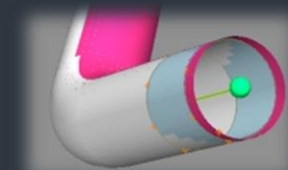
SOLID Model IMPORT



Import MASTER data from the world-wide standards of STEP or IGES files – which means you can import from any solid model package.



This is a model view of extracted centerline data for visual verification



VTUBE LASER INSPECTION

VISUALIZE DEVIATIONS

The measured tube is fit on the master tube using sophisticated fit technology then displayed on the screen for visualization.

INSPECTION GRID

COLOR CODES

Solid Green: The deviation is $\frac{1}{2}$ of the tolerance or better

Light Green: The deviation is less than the tolerance but greater than $\frac{1}{2}$ tolerance

Light Red: The deviation is greater than the tolerance – but less than 2 times the tolerance.

Solid Red: The deviation is greater than or equal to 2 times the tolerance.

Part Qualification

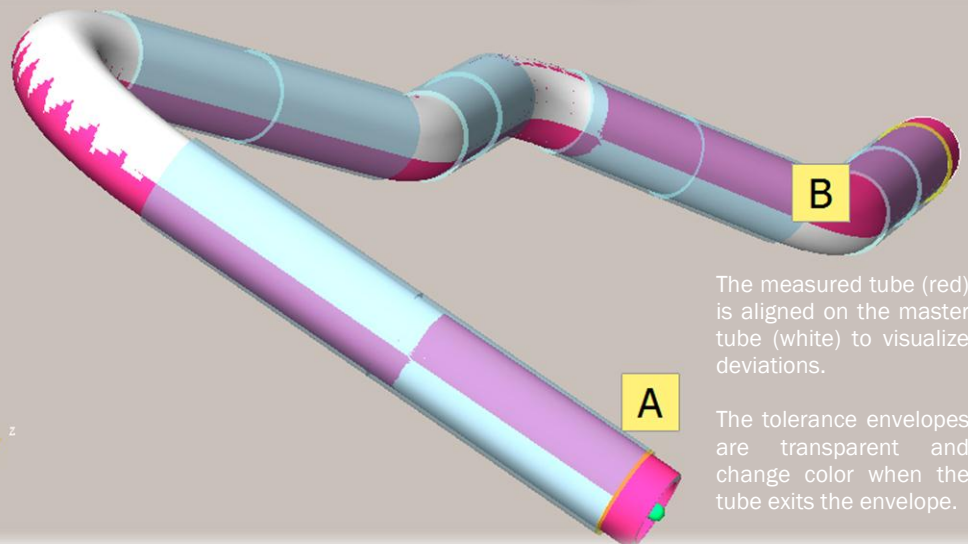
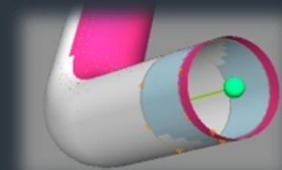
Fully qualify the part using the Inspection Results grid. Color codes give a quick indication of pass/fail for part qualification. Print customizable inspection reports to document the qualification.

The software interface displays a 3D model of a tube with a red measured tube overlaid on a white master tube. The deviation is visualized with color-coded regions. A table of inspection results is shown below the model.

Trim A	Trim B	Angle A	Angle B
0.005	0.006	0.003	0.001

Len Master	Len Measured	Len Long	Cross Check	CC Long
23.890	23.893	0.003	19.797	0.000

T1	T1t	MP	MPT	T2	T2t
0.005	0.039	0.005	0.039	0.005	0.039
0.006	0.039	0.003	0.039	0.002	0.039
0.002	0.039	0.001	0.039	0.002	0.039
0.002	0.039	0.002	0.039	0.001	0.039
0.003	0.039	0.004	0.039	0.004	0.039
0.003	0.039	0.003	0.039	0.002	0.039



The measured tube (red) is aligned on the master tube (white) to visualize deviations.

The tolerance envelopes are transparent and change color when the tube exits the envelope.

VTUBE LASER BENDERLINK

Bender Communication

Connect to benders using the VTube-LASER Benderlink system. Network to any number of benders on your shop floor to correct the benders to the correct part shape in a few minutes.

BENDERLINK SOLUTIONS

We can help you integrate CNC Bender to measuring centers of nearly any type. We're known as the Benderlink specialists.

TECHNICAL SUPPORT

We offer our LogMeIn Rescue service to remotely access your CNC Bender computer for tech-support.

KNOWLEDGEBASE

We have an unparalleled web-based knowledgebase that is available to all our customers for details about our products – including revision details and technical documents.

Bender Setup
 Bender Number: 1
 Bender Name: CNC Bender Protocol: WINTON 3.1

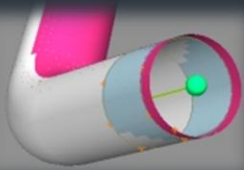
These values are what are stored at the BENDER. BENDER data is often different than the MASTER and MEASURED data.

Part Number:

Diameter: inches
 Wall: inches
 Cut Length: inches

Automatic Springback Damping: degrees
 Automatic Correction Damping: Length Adjustments, Rotation Adjustments, Bend Adjustments
 Previous Adjustment Data: IS NOT PRESENT

	Length	Adjust	SB Adjust	NEW Len	Rotation	Adjust	Invert	NEW Rot	Angle	Adjust	SB Adjust	NEW Ang	Radius
1	6.000	-0.348	0.0000	5.826	0.0	0.0	<input type="checkbox"/>	0.0	117.0	0.0	0.0000	117.0	1.500
2	5.000	0.000	0.0000	5.000	180.0	0.0	<input checked="" type="checkbox"/>	-180.0	29.0	0.0	0.0000	29.0	1.500
3	3.500	0.000	0.0000	3.500	180.0	0.0	<input type="checkbox"/>	180.0	45.0	0.0	0.0000	45.0	1.500
4	3.500	0.000	0.0000	3.500	180.0	0.0	<input type="checkbox"/>	180.0	45.0	0.0	0.0000	45.0	1.500
5	5.000	-0.760	0.0000	4.620									



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SMT INDUSTRIES PINES TECHNOLOGY EATON LEONARD ADDISON MCKEE

EXTEND or TRIM and CROSS-CHECK

The inspection report shows "extend" or "trim" for end measurements, and a "cross-check" straight measure for end-to-end deviation from the master part.

Inspection Results					
Inspection Data - Tangents and Midpoint Gauge					
Default Tolerances: 0.029 inches					
Recalculate Alignment					
Trim A	Trim B	Angle A	Angle B		
0.005	0.006	0.003	0.001		
Lar Master	Len Measured	Len Long	Cross Check	CC Long	
23.890	23.893	0.003	19.797	0.000	
T1	T1L	MP	MP1	T2	T2L
1	0.005	0.039	0.005	0.039	0.039
2	0.006	0.039	0.003	0.039	0.002
3	0.007	0.039	0.001	0.039	0.007
4	0.002	0.039	0.002	0.039	0.001
5	0.003	0.039	0.004	0.039	0.004
6	0.003	0.039	0.003	0.039	0.002

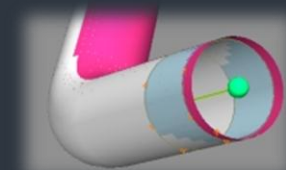
TACTILE OPTIONS

Control the direction of ball-probe offset along the centerline for end trip projections.

End-Scans

Offset End A Toward Bend

Offset End B Toward Bend

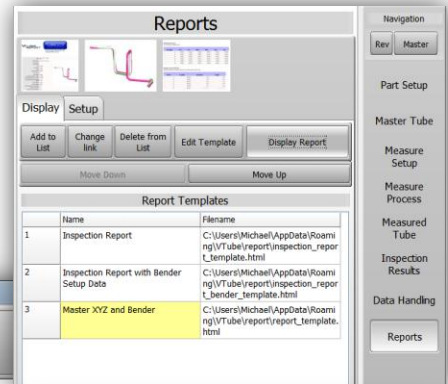


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VTUBE LASER

Flexible Reporting

Design the reports using HTML report templates using our sample reports. Add any number of custom report templates to the list - ready for use in different situations.



VTUBE REPORT MERCURY PRODUCTS ENGINEERED FABRICATIONS & ASSEMBLIES

Date: 4/1/2011 7:57:50 AM
 Part Number: 24858
 Comment 1: Measure short end
 Comment 2: first
 Unit: Inches
 Diameter: 1.712
 Wall: 0.030
 Default Radius: 3.750
 XYZ Points: 3
 Cut Length: 18.434
 Calculated Master Length: 18.434
 Calculated Measured Length: 18.435
 Calculated Master-Measured Delta: 0.000
 A-End Offset: 0.000
 B-End Offset: 0.000
 Tube Elongation Percentage: 6.5
 Fixed Springback: 0.0
 Proportional Springback: 0.0

MASTER XYZ DATA

Point	X	Y	Z	Radius
1	-16.914	2.058	30.097	
2	-15.797	2.778	24.360	
3	-23.927	2.466	14.235	

XYZ DEVIATION DATA

Point	X	Y	Z	Radius
1	0.000	0.000	0.000	1.762
2	7.880	0.000	0.000	2.000
3	-4.281	-9.994	0.000	2.000
4	-4.574	-11.468	0.000	2.000
5	1.480	-13.090	0.000	2.000
6	1.477	-13.877	0.000	2.000

Reports are based on web-compatible files. Display the reports in any web browser.

Date: 4/4/2011 9:46:13 AM
 Part Number: Laser Scan
 Unit: Inches
 Diameter: 0.825
 XYZ Points: 7
 Cut Length: 23.893

Point	X	Y	Z	Radius
1	-19.446	0.942	20.785	2.000
2	-16.971	1.354	23.385	2.000
3	-13.250	-0.908	23.293	2.000
4	-8.893	-0.354	25.340	2.000
5	-11.231	-1.311	30.785	2.000
6	-8.107	1.298	32.668	2.000
7	-4.858	1.715	34.147	2.000

Bend	Length	Rotation	Angle	Radius
1	2.945		44.2	2.000
2	2.099	179.6	44.4	2.000
3	2.056	91.0	89.2	2.000
4	2.049	-150.5	88.9	2.000
5	2.004	-88.2	29.5	2.000
6	3.068			

Edit the report templates with an editor that installs with VTUBE-LASER.

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16 </td>
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22 </td>
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38 <td class="td_spec_value"><vcrube_val>DATE</vcrube_val></td>
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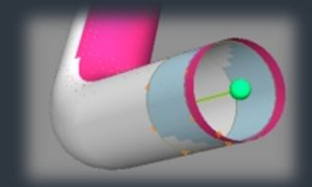
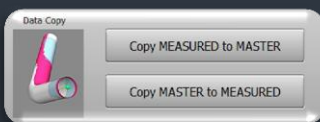
SCAN RATE FILTER

The Scan Rate Filter controls the rate at which VTube brings in scan data. The filter can be set for either DISTANCE or TIMER. For example, you can setup VTube to take in scanned points that are separated by at least a millimeter.

1	Cylinder Scan Type	Timer	
2	Cylinder Scan Timer	125	milliseconds
3	Cylinder Scan Distance	0.020	inches
4	End Scan Type	Timer	
5	End Scan Timer	0	milliseconds
6	End Scan Distance	0.004	inches

COPY MEASURED to MASTER

Reverse-engineering is simple: Copy MEASURED to MASTER data with the single press of a button in the Data Handling menu.



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From a Satisfied Customer



“Advanced Tubular has provided us with an excellent tool for our bent tube scanning needs. The software provides ALL the data we need to optimize our tube bending processes. With the use of V-Tube software we have realized a reduction of scrap and downtime which makes the product pay for itself quickly. The software is laid out in a logical and efficient manner to reduce inspection time so that workload of inspection personnel has reduced significantly from previous measurement methods.”

“The on-site training provided was top notch and well organized in a hands-on approach. The instructor was down to earth and spoke in terms our inspectors could understand. Honestly, the software is so well designed, training others is easy!”

Phil Leslie
Quality Coordinator

Metalsa LV USA, Elizabethtown