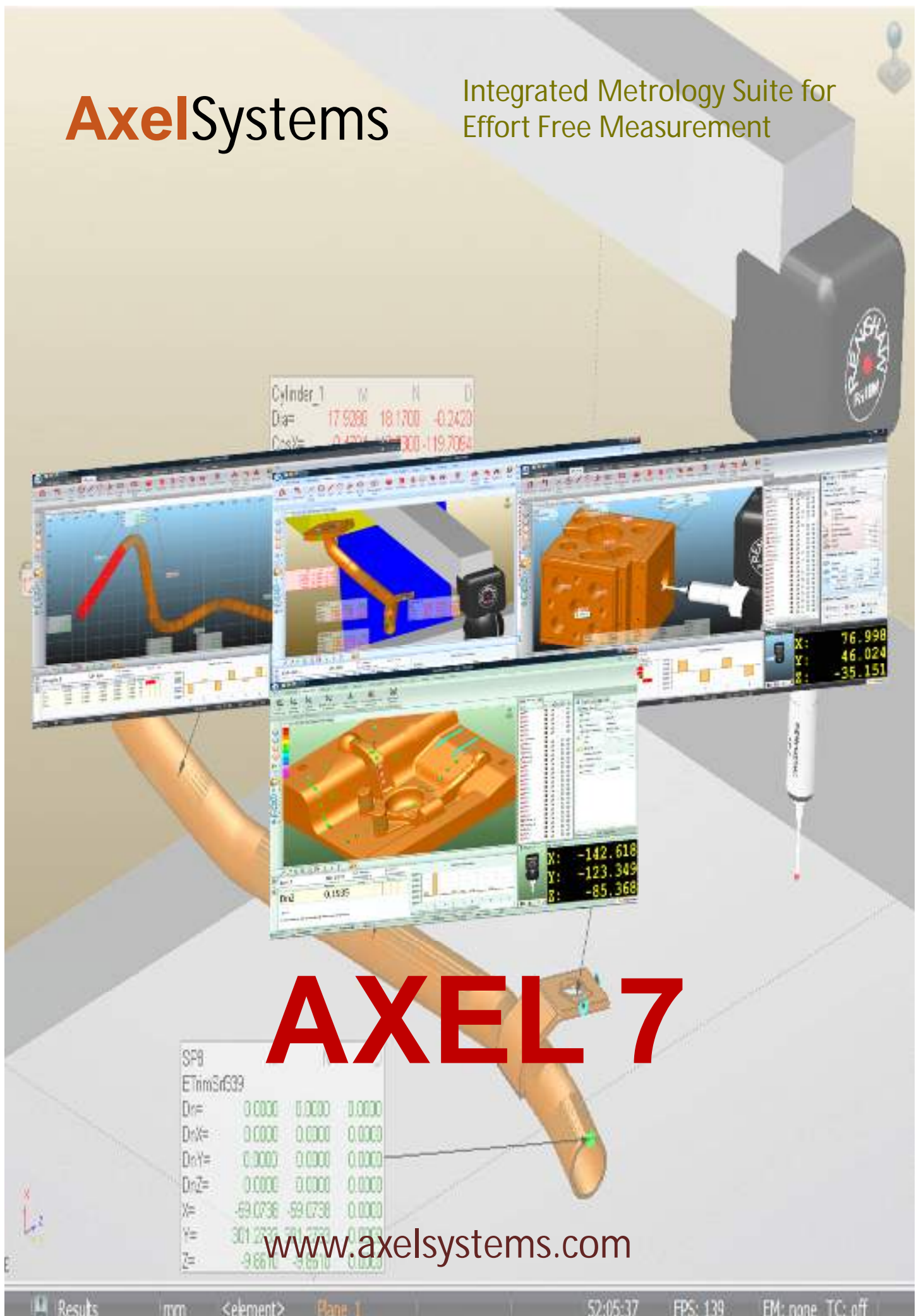


# AxelSystems

Integrated Metrology Suite for Effort Free Measurement



# AXEL 7

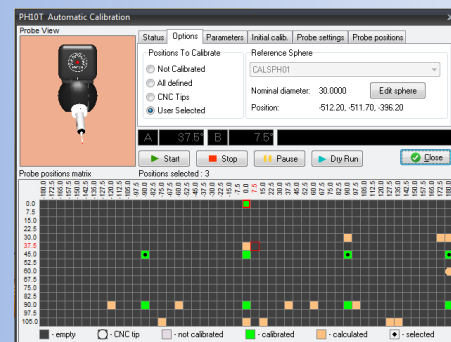
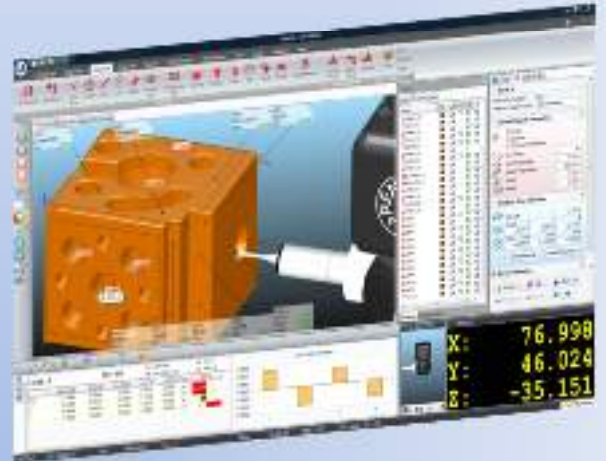
SP8 ETrimSn639			
Dir=	0.0000	0.0000	0.0000
DirX=	0.0000	0.0000	0.0000
DirY=	0.0000	0.0000	0.0000
DirZ=	0.0000	0.0000	0.0000
X=	-59.0736	-59.0736	0.0000
Y=	301.2225	301.2225	0.0000
Z=	-9.8670	-9.8670	0.0000

[www.axelsystems.com](http://www.axelsystems.com)

# ADVANCED FEATURES MAKE AXEL EASY TO USE



- ❑ Work smarter and faster with intuitive graphic interface. Our already successful interface of tabs and toolbars has been enhanced with Ribbon which accelerates the personal workflow and guarantees more efficiency in daily business.
- ❑ Geometric , surface and tube inspection within single metrology framework
- ❑ Algorithms tested with PTB and NPL standard data sets
- ❑ Multiple Coordinate Systems & extensive alignment options with graphical representation in the Measure Window
- ❑ Multiple Measure Window part views with graphical zoom & rotate, solid or wireframe views
- ❑ Geometric Dimensioning & Tolerancing
- ❑ **Intelligent constructions** with context sensitive results
- ❑ Calculated results from user defined formula
- ❑ Reverse engineering features for performing part digitizing
- ❑ Special scan features for **articulated arms**
- ❑ Mouse rotation / pan & zoom / ' view grid / adjustable shadows & lighting
- ❑ 'Go mode' for running manual measurement sequences
- ❑ Go mode auto view play to enhance feature inspection
- ❑ DDE / File / Serial Data export to SPC & Excel
- ❑ Export results to **MS Excel and HTML** with multiple templates
- ❑ User configurable, fully featured text & Graphical Report Generator



INSPECTION REPORT									
AxelSystems		Part name	tptest5						
		Part Info	Axel Systems Ltd						
		User name	Ed						
		Machine	Ed						
		Modified by	Ed						
Surface points									
Name	X	Y	Z	DnX	DnY	DnZ	Dn	Up-Tol	Lo-Tol
SP1	48.8171	91.1531	-25.1278	0.0001	0.0075	0.0004	-0.0075	1.5000	-1.5000
SP2	54.4870	78.6293	-8.0081	-0.0001	-0.3088	-0.3725	0.4840	1.5000	-1.5000
SP3	9.0733	72.7792	-4.1904	0.0002	-0.2989	-0.3497	0.4548	1.5000	-1.5000
SP4	69.3952	39.8646	-0.7301	0.0004	-0.0011	-0.7316	0.7316	1.5000	-1.5000
SP5	21.4184	15.3407	0.7173	-0.0002	-0.0002	-0.7173	0.7173	1.5000	-1.5000
SP6	58.5594	7.8077	0.7147	-0.0001	0.0004	-0.7147	0.7147	1.5000	-1.5000
SP7	72.0723	16.0000	-6.4794	-0.0003	0.0007	-0.0002	0.0007	1.5000	-1.5000
SP8	70.2875	16.0016	-19.5352	0.0000	0.0212	-0.0001	0.0212	1.5000	-1.5000
SP9	70.5221	16.0153	-42.7350	0.0002	-0.0007	0.0002	-0.0007	1.5000	-1.5000
SP10	62.5999	5.9994	-83.8484	-0.0002	0.0712	0.0001	0.0712	1.5000	-1.5000
SP11	62.4885	5.9817	-9.7421	-0.0001	0.0097	0.0001	0.0097	1.5000	-1.5000

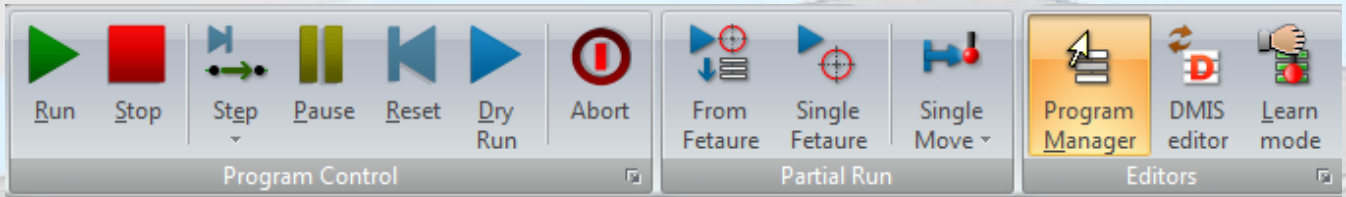
Plane	No of data	Measured	Nominal	Deviation	Up-Tol	Lo-Tol	In/out	Out-Tol
Plane_1	0/0 pts	Coordinates <machine>	SPC: Z	Layer default	Probe PH181(TIP_1)			
Plane_1	0/0 pts	Coordinates <machine>	SPC: Y	Layer default	Probe PH181(TIP_1)			
Plane_2	0/0 pts	Coordinates <machine>	SPC: X	Layer default	Probe PH181(TIP_1)			

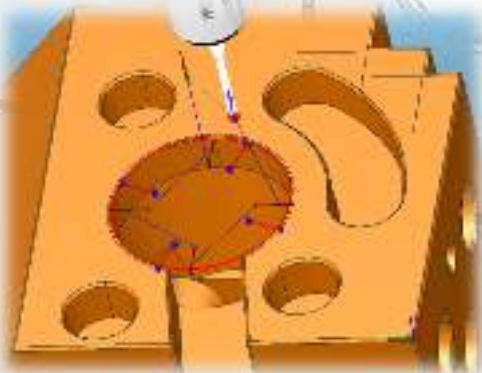
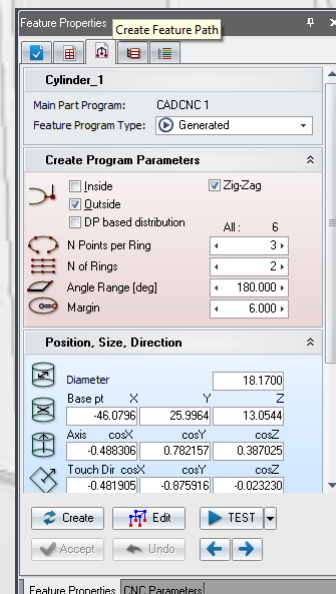
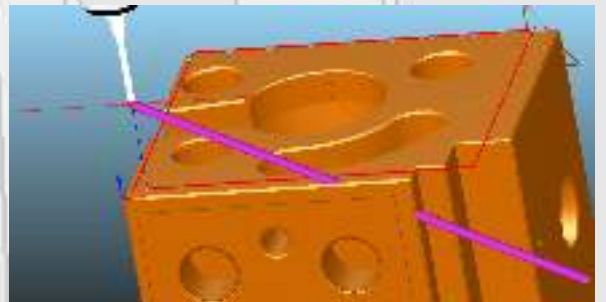
Properties: Circle_5	
Name	Circle_5
Layer	default
Reference sys.	<element>
Projection	Plane_8
Probe Correction	Inside / d=1.99
Note	
Print	<input type="checkbox"/>
Message	Open
Display when me...	<input type="checkbox"/>
Solid Probe Scan	Open
No of data	4

# Axel CNC

Adds the ability to inspect on automatic CMMs



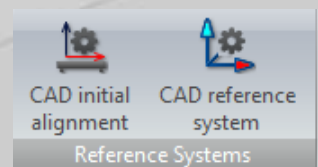
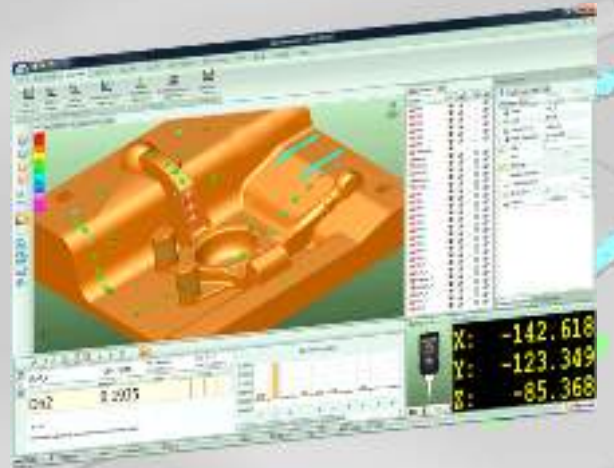
- ❑ Click and Measure functionality. Axel Suite strikes perfect balance between power and ease of use. Majority of applications can be handled with Click and Measure functionality whereas for those special tough jobs
- ❑ Automatic collision avoidance strategies find the best route between measured features
- ❑ CAD initial alignment to place the CAD model within CMM envelope
- ❑ Extensive set of feature extraction tools from CAD models
- ❑ Graphical program editing to quickly introduce program changes
- ❑ Direct measurement of CAD model via joystick or onscreen control
- ❑ Automatic selection of Renishaw probe positions
- ❑ Automatic CNC probe calibration
- ❑ DMIS / Text Program import / export
- ❑ XYZ / YBC coordinate data entry & XYZ to YBC conversion



# Axel Surface Adds the ability to inspect against CAD models

Axel Surface adds surface inspection features providing a truly integrated geometrical and surface inspection environment allowing to measure complex shapes on manual CMMs, measuring arms or CNC CMMs.

- ❑ Part inspected against nominal CAD data
- ❑ Parametric / B-spline / trimmed surface inspection
- ❑ Part alignment with 3D best-fit method, multi-entity or Reference Point System (RPS)
- ❑ Graphical representation of surface errors
- ❑ Interfaces available to various CAD formats – DXF / IGES / CATIA v4 & 5 / ProEngineer / STEP / VDA
- ❑ Surface Point, Surface Edge & Surface Block inspection
- ❑ Metal thickness compensation
- ❑ CAD feature interrogation & capture / layer & CAD entity control
- ❑ CAD transformation
- ❑ Extensive CAD feature extraction methods
- ❑ Label / vector / colour-coded representation of surface errors
- ❑ Rendered or wire-frame graphical views
- ❑ Mouse rotation / pan & zoom / view grid / adjustable shadows & lighting
- ❑ Adjustable search range & error magnification



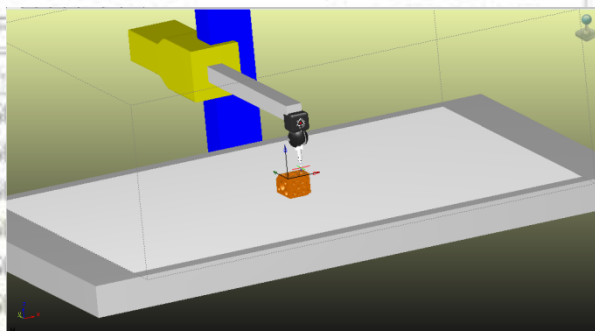
DP: 30/30

Ref: <element>

Corr: 30 / 2-

Data Point

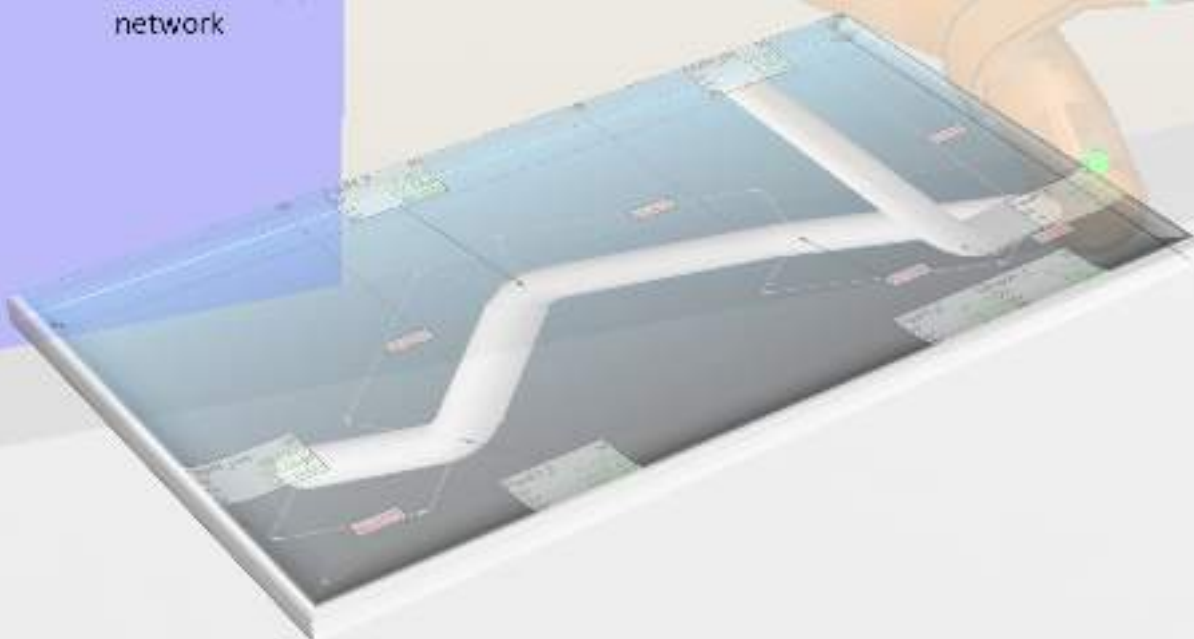
Deviation	Up
-0.0406	0.5
-0.0354	0.5
-0.0502	0.5
-0.0379	0.5
-0.0285	0.5
-0.0218	0.5
-0.0219	0.5000
-0.0345	0.5000
0.0119	0.5000



# Axel Pipe

## ADDS THE ABILITY TO INSPECT TUBES

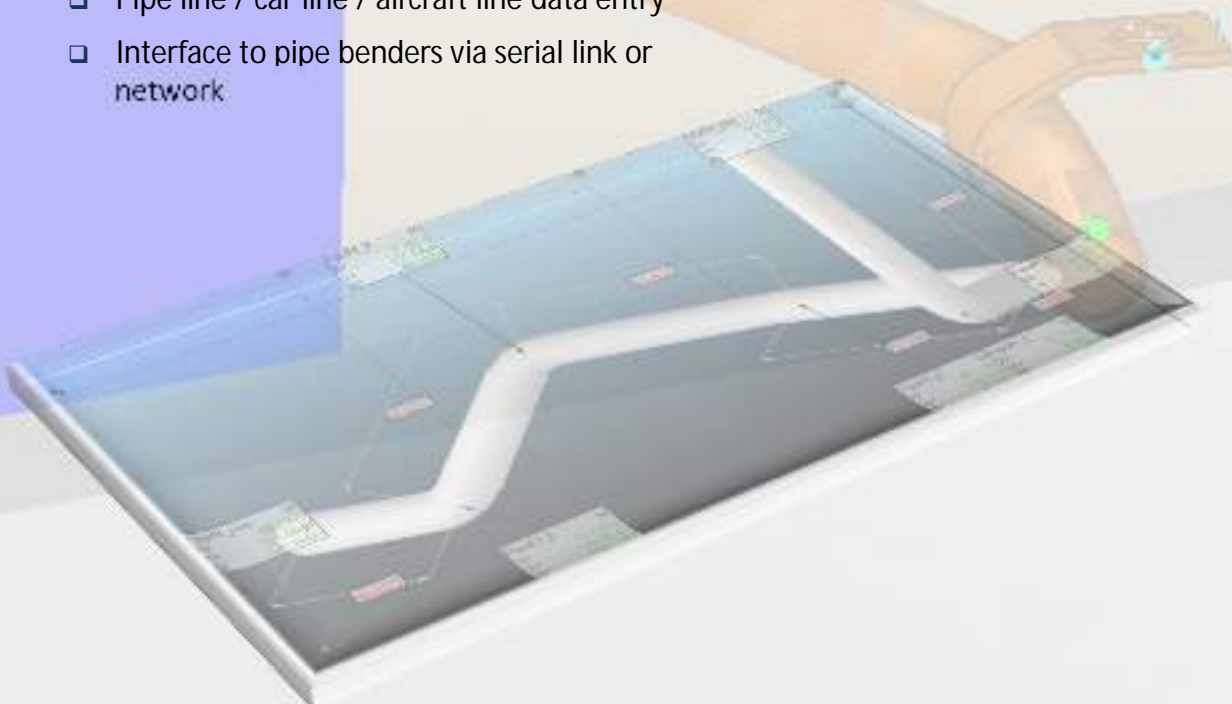
- ❑ Fully integrated with existing measurement functions allowing tube, geometric and CAD features to be measured in the same operation
- ❑ Rapid inspection of pipe fixtures with respect to pipe nominal data
- ❑ Automatic generation of 3D pipe graphic from nominal data
- ❑ Automatic generation of pipe inspection sequence
- ❑ Nominal data entry from CAD
- ❑ Nominal data conversion from car line to tube line.
- ❑ XYZ / YBC coordinate data entry & XYZ to YBC conversion
- ❑ Pipe inspection against nominal model with comprehensive selectable fit on start points / intersection points & brackets
- ❑ Custom designed graphical reports & measured pipe summary
- ❑ Data manipulation allowing rotation of tube into a 'flat' orientation allowing efficient fixture design
- ❑ Bracket / end fitting / additional feature measurement
- ❑ Pipe line / car line / aircraft line data entry
- ❑ Interface to pipe benders via serial link or network



# Axel Pipe

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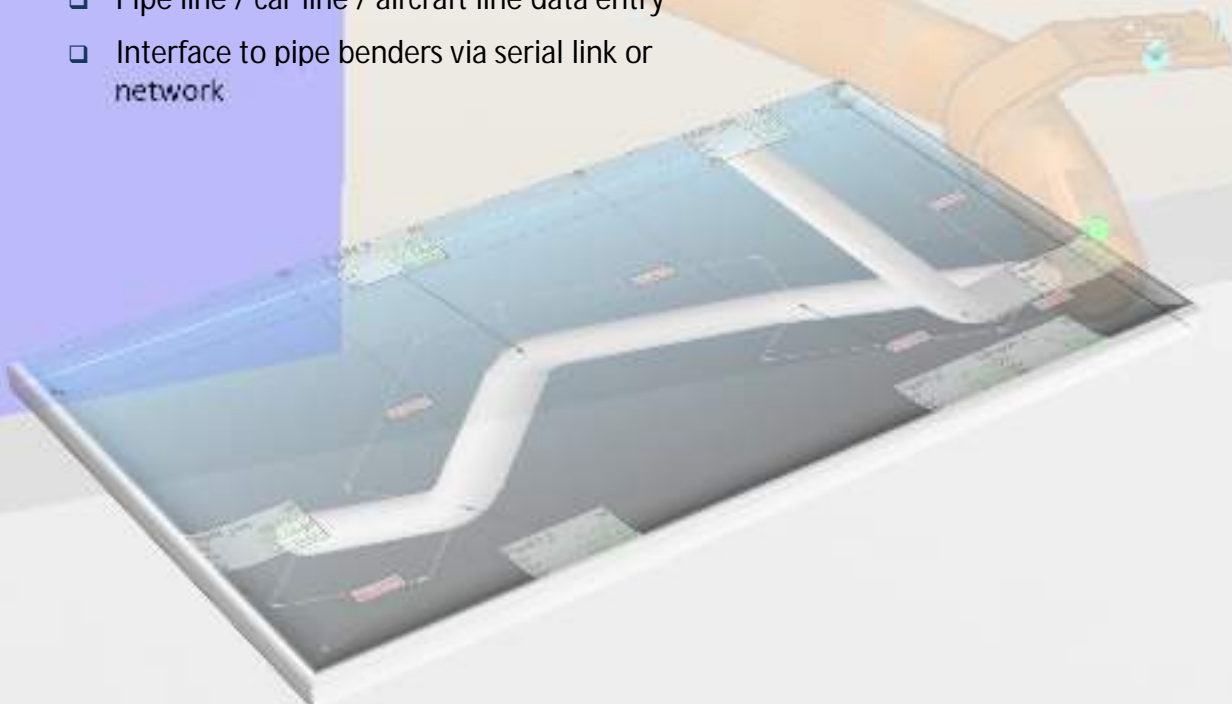
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## Key features

### Integrated Environment Measuring

- ❑ New Ribbon user interface with Axel button
- ❑ Geometric, surface and tube inspection within single metrology framework

### Geometrical Measurements

- ❑ Algorithms tested with PTB and NPL standard data sets
- ❑ Set of 3D geometrical features
- ❑ Multiple coordinate Systems & extensive alignment options with graphical representation in Measure Window
- ❑ Geometrical Dimensioning and Tolerancing
- ❑ Intelligent constructions with context sensitive results
- ❑ Calculated results from user defined formula
- ❑ Reverse Engineering features for performing digitizing

### Graphical Environment

- ❑ Multiple Measure Window Part views
- ❑ Mouse rotation / pan &

zoom / 'view grid' / adjustable shadows & lighting

### Results Presentation

- ❑ User configurable , fully featured text & Graphical Report Generator
- ❑ Graphical Results boxes and dimensions in the Measure Window

### Interfaces

- ❑ DDE / File / Serial Data export to SPC & Excel
- ❑ Export Results to MS Excel and HTML with multiple templates

### CNC Programming

- ❑ Placement of CAD model within CMM envelope
- ❑ Extraction of geometric and measured features from CAD model
- ❑ Click & Measure functionality
- ❑ Collision detection & avoidance
- ❑ DMIS import/ export

### Surface Measurements

- ❑ Part inspected against CAD

model

- ❑ Part alignment with 3D best fit method, multientity or Reference Points System ( RPS)
- ❑ Metal thickness compensation
- ❑ Placement of CAD model within CMM envelope
- ❑ Extraction of geometric and measured features from CAD model
- ❑ Interfaces to Catia / DXF / IGES / ProEngineer / STEP / VDA

### Pipe Inspection

- ❑ Fully integrated with existing measurement functions allowing tube, geometrica and CAD features to be measured in the same operation
- ❑ Rapid measurement of pipe fixtures with respect to pipe nominal data
- ❑ Interface to pipe benders
- ❑ Bracket / end fitting / additional feature measurement
- ❑ Pipe line/ car line / aircraft line data entry
- ❑ Nominal data entry from CAD

## The Axel Software is currently available in the following languages



For sales information telephone: +44 (0) 208 1336999 or email [sales@axelsystems.co.uk](mailto:sales@axelsystems.co.uk)

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