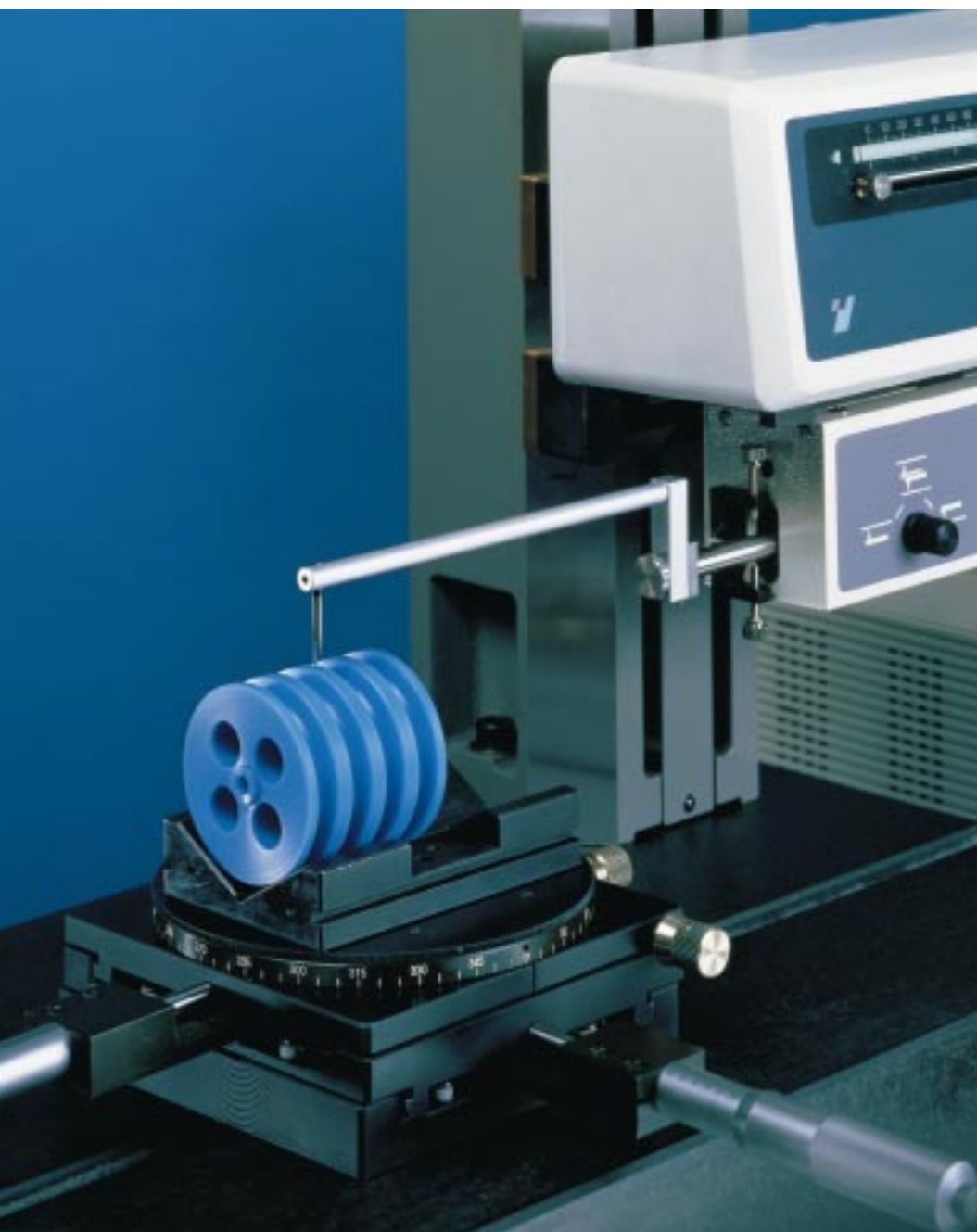


Contourecord 1600D/2600E Flexible Measuring Stations for Contour Measurement and Analysis



- Large measuring ranges
- Automatic measurement
- Fast data processing

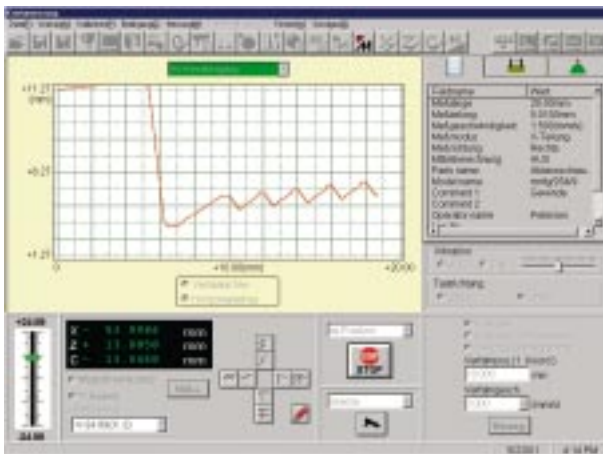


Contourecord 1600D/2600E TIMS - the Intelligent and Pioneering Software Strategy

Measurement

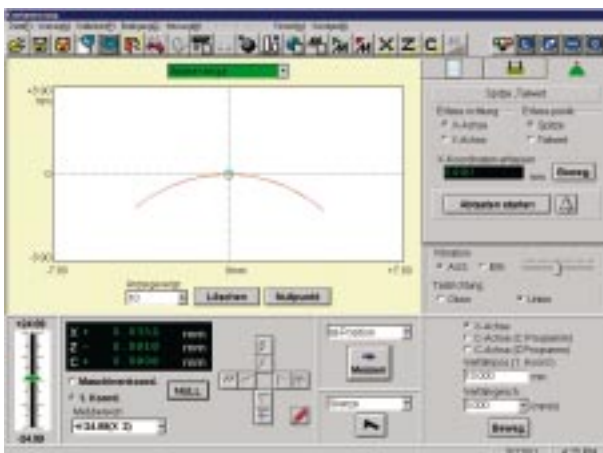
The measurement window offers clearly defined access to all relevant functions, such as

- Control of all measurement axes
- Input of workpiece data
- Definition of measuring conditions and point distance
- Setting of automatic functions
- Automatic calibration function
- Sampling length selection via path display



User friendliness through versatile program routines

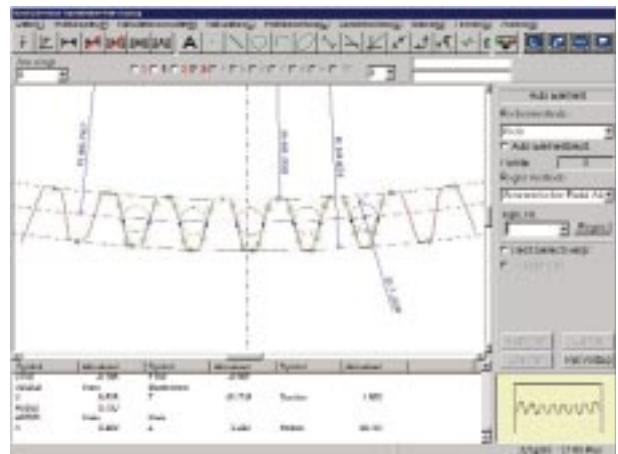
For example, for the alignment of workpieces according to their highest/lowest surface point (on shafts, threads).



Analysis

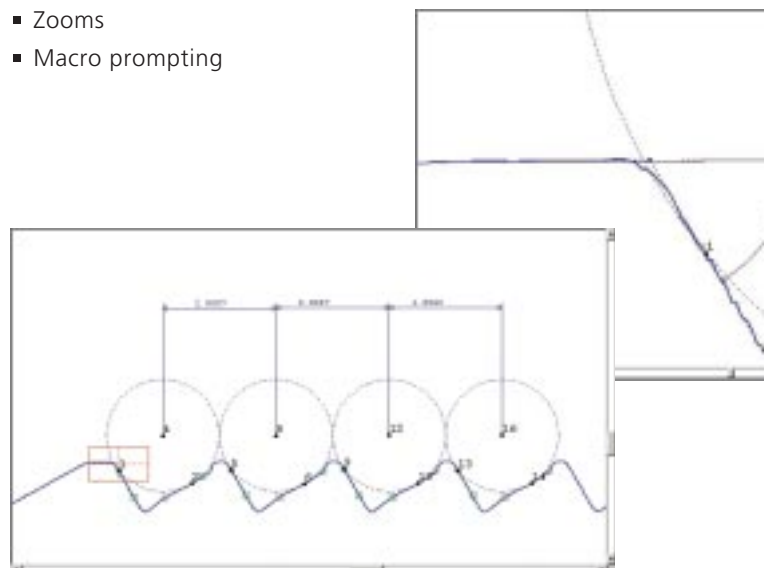
Immediately after measurement, the profile is displayed in the analysis window offering a wide evaluation spectrum.

- Manual or automatic element assessment such as radii, distances, angles, etc.
- Best fit circles and regression line
- Repeat functions
- 10,000x zoom
- Max. 10 profiles with up to 100,000 profile points processed simultaneously
- Meaningful dimensioning



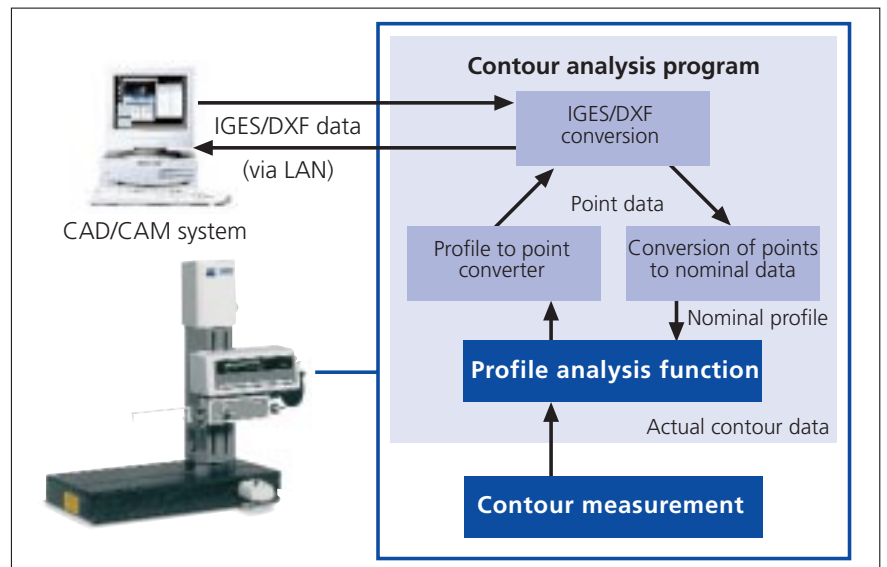
Perfect profile analysis due to a multitude of practical applications such as:

- Repeat functions
- Zooms
- Macro prompting



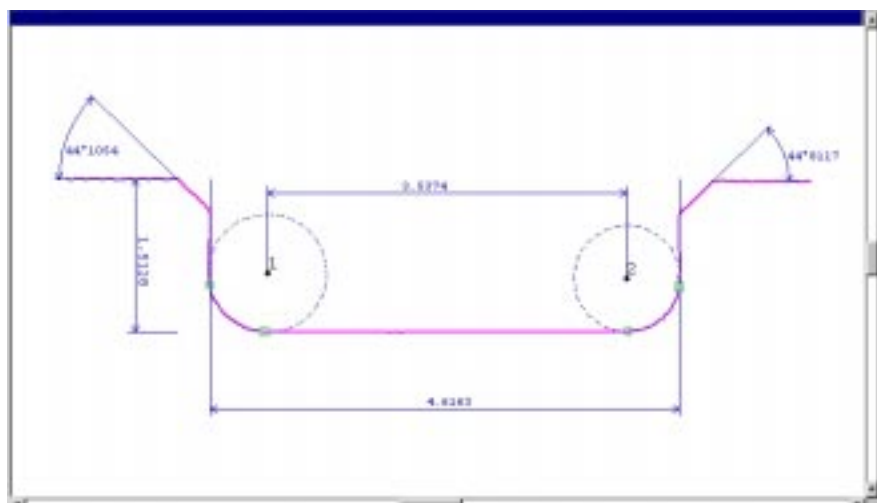
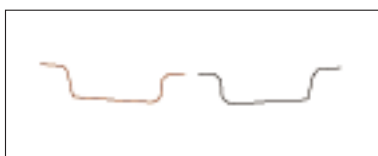
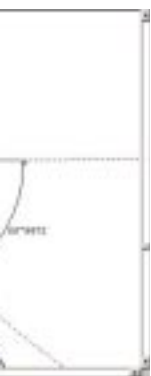
CAD / CAM interface


Perfectly closes the gap between CAD and CAM using a nominal/actual comparison of the measured profiles.



Piecing together of profiles

from several measured profiles of a detail, to obtain a complete evaluation when measuring undercuts, for example.



 **Nominal/actual comparison and best fit**

Fast comparison of measured and nominal profiles. Nominal profiles can be generated from measured data and CAD data (IGES/DXF).

Nominal/actual comparison without best fit



Using the best fit function, actual data is harmonized perfectly with the nominal data for the comparison.

Nominal/actual comparison with best fit



(with Contourecord 2600 Standard)

Spherical analysis function

With this optional software function, nominal spherical profiles can be generated that remain available for the nominal/actual comparison.

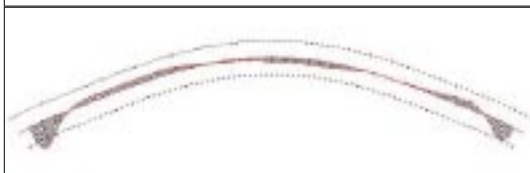
$$Z_c = \frac{(1/R) \cdot X^2}{1 + \sqrt{1 - (1+K) \cdot (1/R)^2 \cdot X^2}} + \sum_{i=2}^n A_i \cdot |X|^i$$

$$Z = Z_c + Z_d$$

R = Radius *n* = number of terms (1-20)

K = Cone coefficient *A_i* = Aspheric coefficient

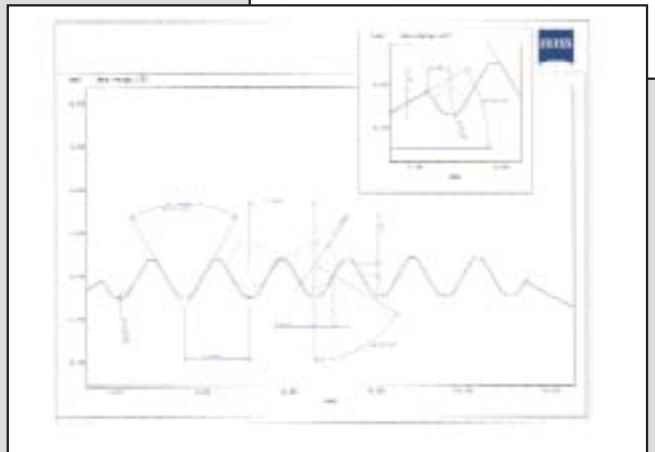
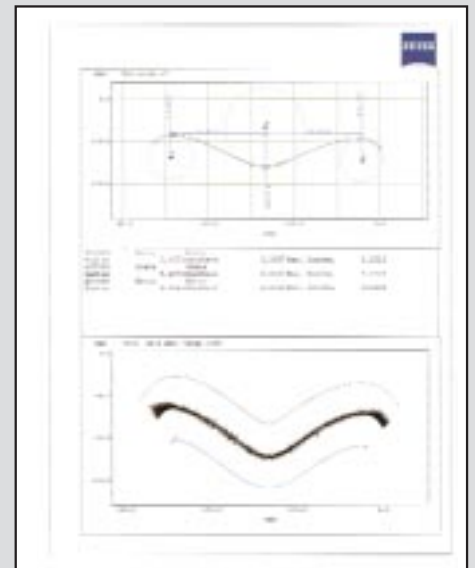
Z_d = *Z* direction (1 or -1)



 **Printing**

The print layout of comprehensive measuring records can be structured as needed.

- Dimensioned profile and details
- Lists of results, measuring conditions, comments
- Inclusion of company logos, workpiece drawings and pictures
- Export of record element for other software applications.



Contourecord 1600D/2600E

Efficiency and Ease of Operation

- Designed for fast, simple and precise contour measurement
- Equipped with state-of-the-art PC hardware, a reliable Windows NT operating system and comprehensive TIMS measuring and evaluation software routines.
- High straightness accuracy and glass scale in the X-axis
- Automatic calibration functions for optimum linearity
- Software compensation for sensor arm and stylus tip geometries
- Simple CNC programming in the teach-in mode for batch measurement and macros for routine analyses
- Integrated language selection: German, English, French, Italian, Spanish

Wide evaluation spectrum



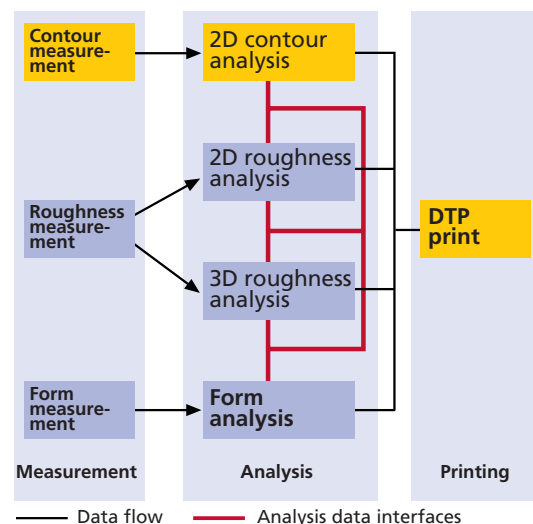
Contourecord 2600E

- Measuring station for cutting edge accuracy requirements
- Incremental glass scale also in the Z-axis
- Including the following software functions: best fit, nominal/actual comparison, CAD data exchange
- Modular capability for roughness and 3D roughness applications
- Modular design with extended traversing length, granite plate, etc.



Contourecord 1600D

- Measuring station for high accuracy requirements
- Large measuring ranges
- Modular capability for roughness and 3D roughness applications
- Modular design with long traversing length, granite plate, etc.



Specifications

Horizontal axis (X-Axis)		Contourecord 1600D / 2600E	
Traversing length; measuring range	100 mm (option: 200 mm)		
Straightness accuracy	1 µm / 100 mm		
Tracing speed	0.03 - 6 mm/s		
Z stroke and drive speed	250 mm with 3 mm/s & manual		
Detection principle	Glas scale		
Linear accuracy	± (1 + 2L/100) µm; L = evaluation length		
Resolution	0.1 µm		
Number of sampled data points	100.000 points (max. of 10 profiles)		
Minimum sampling pitch	1 µm (0.1 µm)		
Vertical axis (Z-Axis)		Contourecord 1600D	Contourecord 2600E
Measuring direction	Both upward & downward directions	Both upward & downward directions	Both upward & downward directions
Measuring ranges	50 mm	50 mm	50 mm
Detection principle	LVDT	Glass scale	Glass scale
Linear accuracy	± 0.25% of meas. height	± (0.8+2/100L) µm	± (0.8+2/100L) µm
Resolution	0.125 µm / 2 mm; ~ 3.125 µm / 50 mm	0.025 µm	0.025 µm
Measuring force	≤ 30 mN	≤ 30 mN	≤ 30 mN
Radius of stylus	25 µm R (option: 250, 500 µm R)	25 µm R (option: 250, 500 µm R)	25 µm R (option: 250, 500 µm R)
Material of stylus	Tungsten carbide (option: Ruby ball)	Tungsten carbide (option: Ruby ball)	Tungsten carbide (option: Ruby ball)
Tracing angle upward slope	77° on smooth surface	77° on smooth surface	77° on smooth surface
Tracing angle downward slope	87° on smooth surface	87° on smooth surface	87° on smooth surface
Stylus vibration	Damping system possible	Damping system possible	Damping system possible
Tracing arm lift off	Automatic system	Automatic system	Automatic system
Data processing		Contourecord 1600D / 2600E	
Operating system	Win NT with network card		
Units	µm, µinch selectable		
Magnification	0.01–10000, manual & auto		
Calculation of geometrical parameters	Point, Straight line, Circle, Arc, Ellipse, Max./Min. points, Distance, Coordinate difference, Polar coordinate difference, Intersection elements, Symmetrical elements		
Display functions	Calculation between profiles, Origin setting, X-axis setting, Translation/rotation of coordinate system		
Further possible functions	Cartesian/polar coordinate display, A-R value display, Overlaying of multiple profiles, Combination/selec profiles, Comparison of tolerances with nominal values, Teaching and playback function		
Printing	Color ink jet print DIN A4		
Various layout plotting/printing	possible		
Miscellaneous		Contourecord 1600D / 2600E	
Power supply	100, 110, 120, 200, 220, 240 Vac (50/60 Hz)		
Power consumption	approx. 350 VA		
Dimensions	2100 mm width, 1400 mm height (incl. rach and frame – optional), 1000 mm depth		
Dimensions of base	600 mm (width), 316 mm (depth); (option: 1000 x 450 mm)		
Max. load of base	50 kg		
Weight	200 kg		

Subject to change.