

Software FormControl V3

Programmlauf Satzfolge

	ÜBERSICHT	POS	LBL	CYC	R	POS
1	*****					
2	BLUM FORMCONTROL 3D MESSEN					
3	PROGRAMM ZUM ORTHOGONALISIEREN					
4	ANFANG VON FLÄCHENPUNKTEN					
5	MIT BLUM TASTSYSTEM TC52/TC52Z					
6						
7	ERGEBNIS:					
8	-SCHLUPUNKTVEKTOR					
	0% S-IST					
	0% SINUS					
	15.00					
	+0.000 Y	+0.000 Z	+0.000			
	+0.000 +R	+0.000 +B	+0.000			
	+0.000					
	S1 0.000					
	REF					
	T 1					
	Z 0.100					
	F 8					
	R 5 / S					
	STATUS	STATUS	STATUS	STATUS	STATUS	STATUS
	ÜBERSICHT	POS.-ANZ.	WERKZEUG	KOORD.	UMRECHN.	

5-Axes
Best-Fit
Collision Control

Contour measurement

In-process monitoring

Shopfloor-oriented operation

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Your advantages

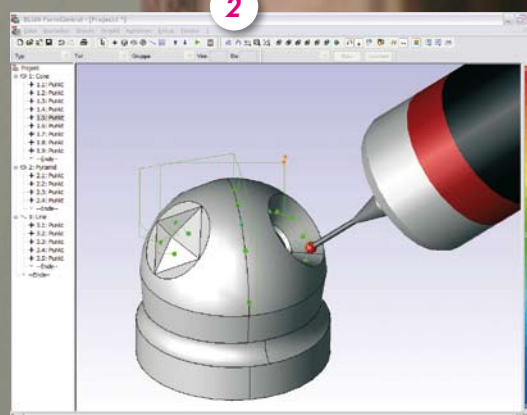
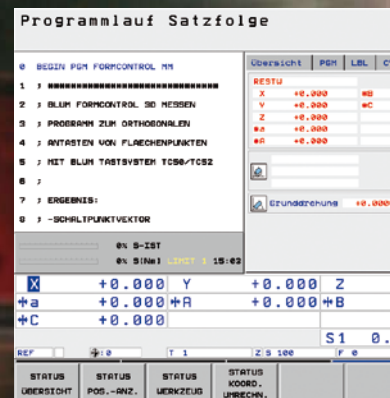
- Contour measurement in the machining center
- Fast detection of machining errors
- Immediate rework in initial setup
- Easy to use with logically structured and self-explaining user interface
- Increase of in-process reliability
- Application with any probe system desired

Early problem identification

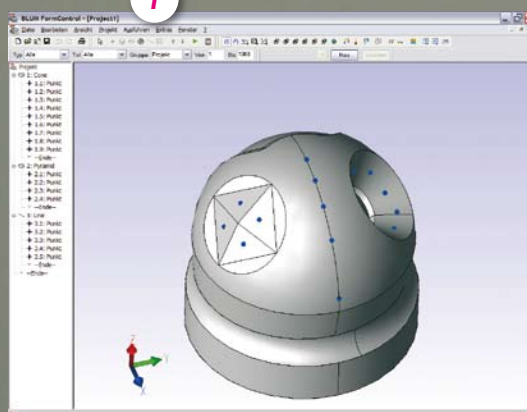
- Incorrect cutting parameters
- Wrong tool dimensions
- Incorrect tool orientation
- Tool wear
- Thermal drift of machining center
- Setting errors

***Simplified economic production
of highest quality***

- Fast compilation of the measuring program, automatic transmission to machine control followed by the execution of the measuring sequence



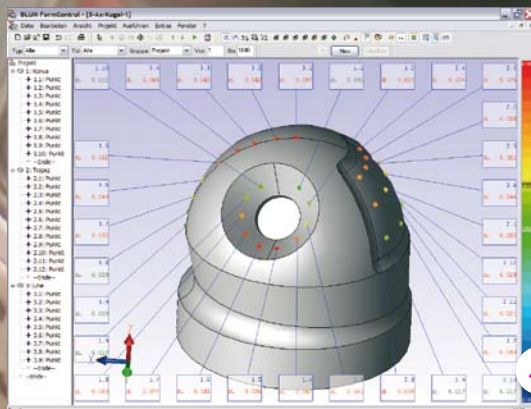
- Measuring points can be displaced via simple coordinate inputs
- Automatic calculation and display of probe paths



- Import of surface data from CAD/CAM system
- Measuring points can be identified via mouse

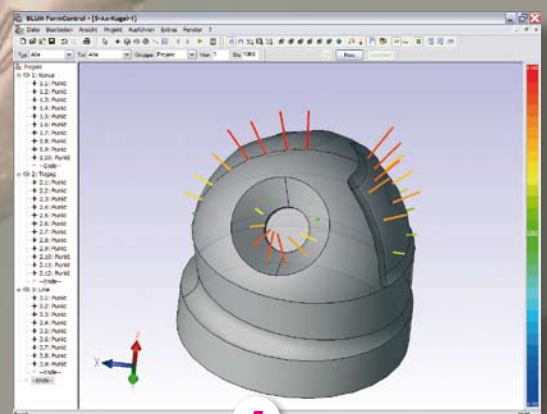


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- Automatic import of measuring results for evaluation with ADIF
- Colour coded tolerance evaluation

4



- Large number of measuring points can be displayed – alternatively via needles or colour points

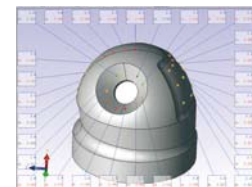
5

6

Messprotokoll

BLUM

Kunde: Formenbau GmbH
Beschreibung: Testteil
Teilenummer: P2000-6574
CAD: Flieger.JGS
Prüfer: Riedter
Datum: 2004-10-28
Maschine: Hermle C40
Einheit: mm



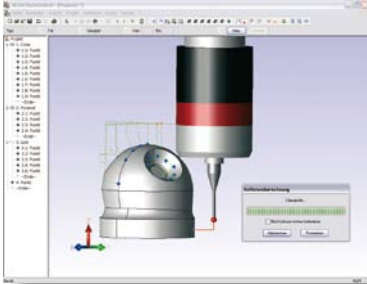
Flächen-Punkt	nominal			gemessen			Toleranzen	
	X	Y	Z	dx	dy	dz	max.	min.
1	-43.220	9.726	-2.866	-0.005	-0.010	-0.002	-0.020	-0.300
2	-20.691	15.557	-13.538	0.024	-0.010	0.003	-0.020	-0.300
3	-12.815	44.128	-3.684	-0.004	-0.002	0.011	-0.020	-0.300
4	13.889	43.426	-3.836	-0.019	-0.036	0.016	-0.020	-0.300
5	21.621	15.333	-12.248	-0.019	-0.013	-0.005	-0.020	-0.300
6	43.783	10.179	-2.291	-0.036	-0.023	0.003	-0.020	-0.300

- Tabular measuring report with workpiece display can be printed
- Measuring values can be exported in CSV format
- Independent of the program

New Features

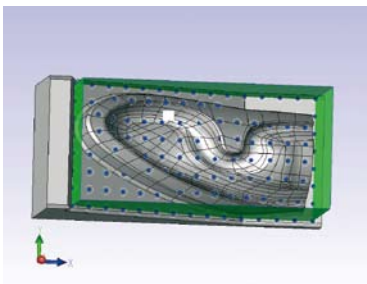
Collision control

- Collision detection for 3-axes or 5-axes machines: before they affect the machine



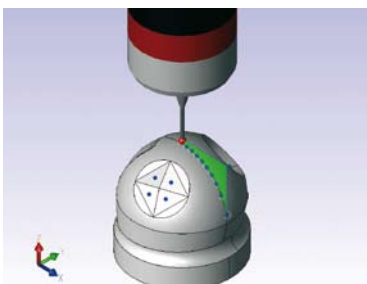
Alignment

- Simplified referencing between work piece and machine coordinate system
- Correction of setting errors of work piece and probe system
- Compensation of thermal drift of machining center
- Compliant with standards of measuring machines



New measuring point generation

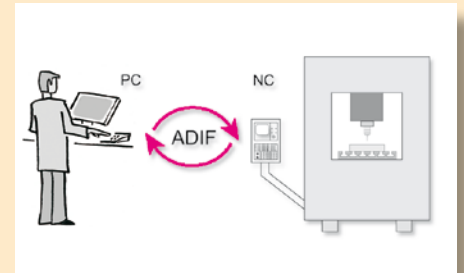
- Even spread and fast generation of a large number of measuring points
- Along a line or by means of a grid
- Measuring points can be imported by CAD/CAM



Grouping

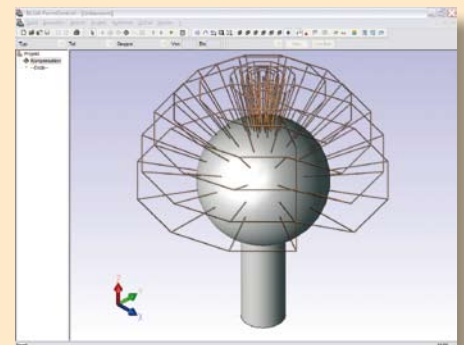
- Time saving for generation and measurement of large projects
- Simultaneous modification of measuring point characteristics of one group
- Structuring even with a large number of measuring points

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ADIF

- Measurement by mouse click
- Compilation of program to control
- Automatic import of measuring results



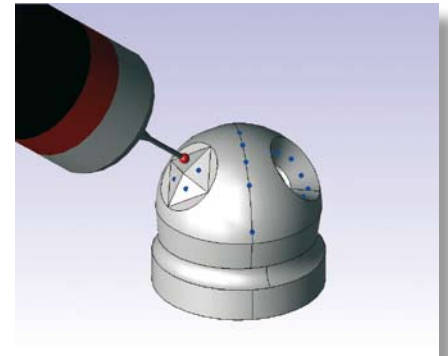
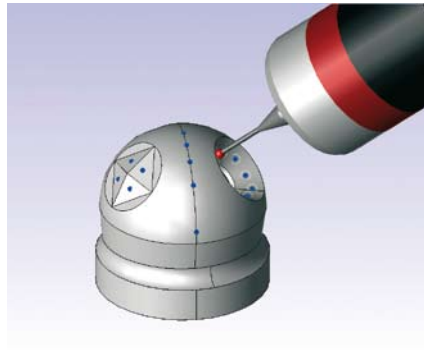
Single calibration

- Initial calibration with ceramic ball only at first setup or after change of stylus
- Minimization of idle times due to unnecessary calibration within measuring sequence
- No restriction of the working area by ceramic ball

New Features

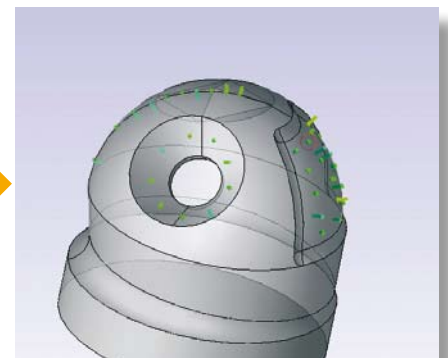
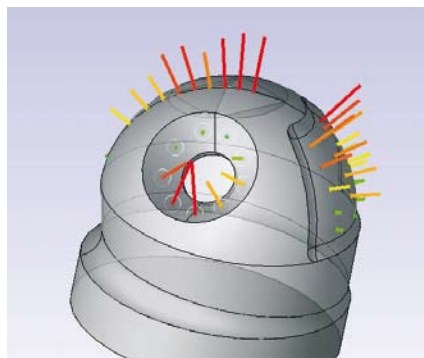
5-axes

- Any requested orientation of probe system resp. work piece
- Measurement of relief cuts or oblique borings possible
- 5-axes measurement of 5-axes operations
- No measuring point is unreachable

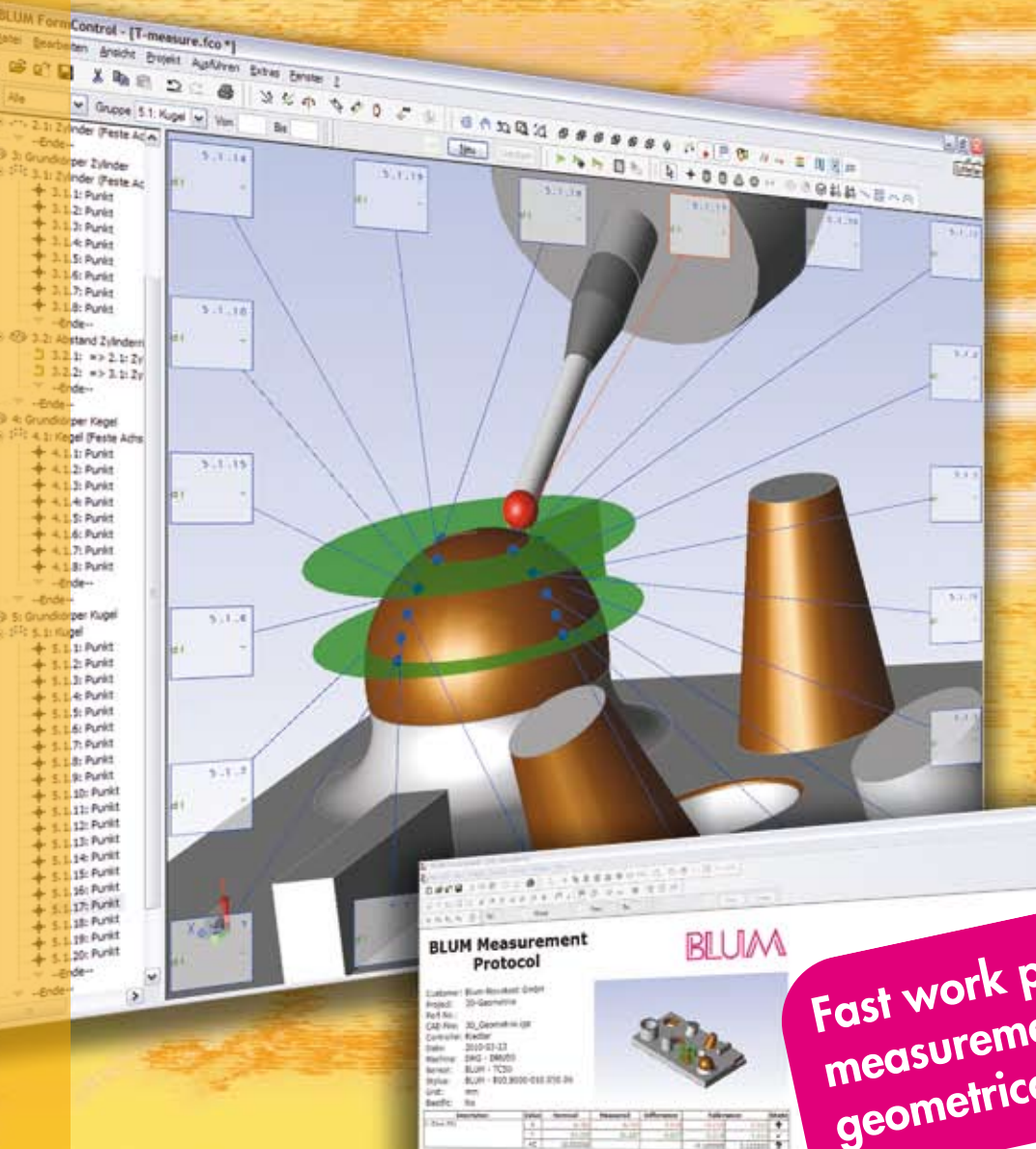


Best-Fit

- Display of production errors at optimum work piece alignment
- Compensation of systematic measuring errors
- Individual weighting of measuring points possible
- Displacement and /or rotation of work piece possible



Software **FormControl V4**



Fast work piece control due to measurement and analysis of geometrical standard elements

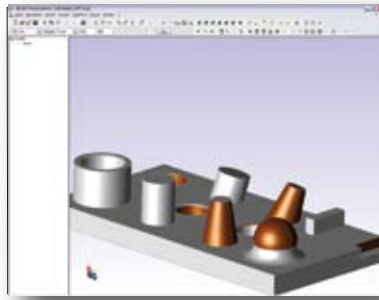
Simplification manufacturing processes

Reduction of cycle times

Avoidance of scrap parts

1/10

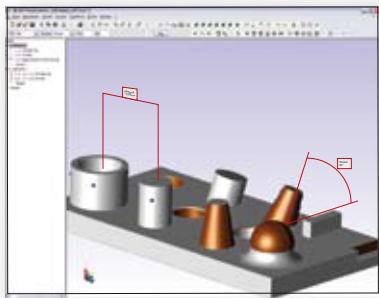
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Measurement of geometrical standard elements

Fast and flexible measurement of:

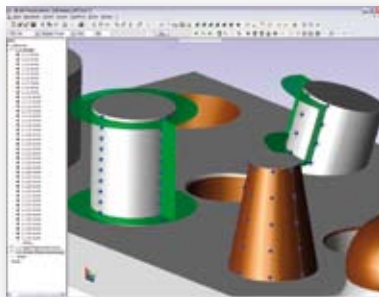
- bore & pin
- sphere
- cone
- bar & groove
- radius
- step



Analysis function

Comfortable checking of related geometrical elements:

- Fast verification of distances from one element to the other
- Angular positioning from one element to the other
- Cone angle and shaft angle
- Reference or chain dimensioning



Flexible definition of measuring points

Work piece related adjustment of the measuring procedure:

- Number of measuring points on one section
- Number and position of sections on a geometric element
- Element specific predefinition of start and end angle (circular arc)

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Workshop oriented handling

- Use of reference elements for following measurements
- Time savings due to drag & drop function
- Results in the measuring protocol can be displayed flexibly
- User-friendly handling