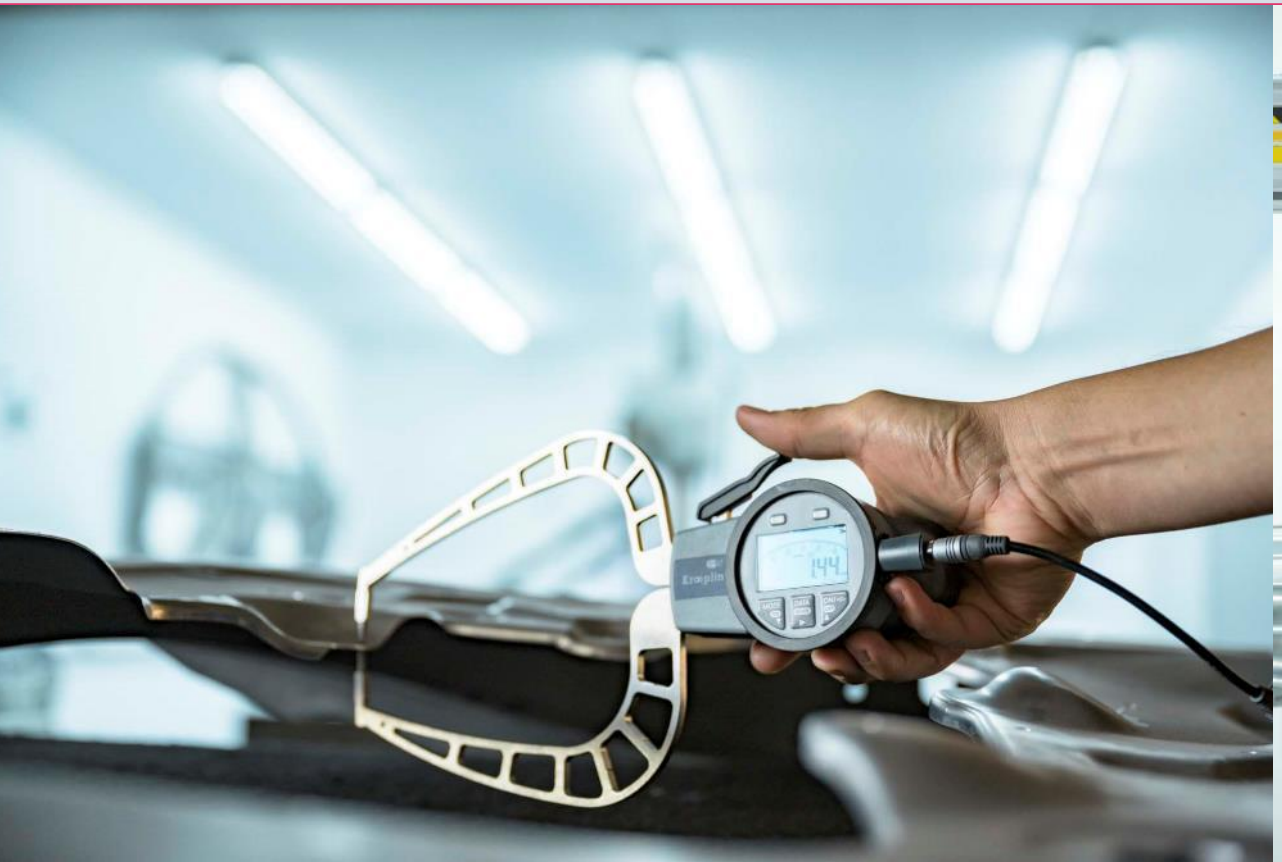
ipma PROCESS. MADE BETTER.

MEASURMENT TECHNOLOGY



In order to ensure the high-quality requirements of our customers in component production and parts rework, we have expanded our range of services by the area of measurement technology. Here we generate measurement reports in order to analyze tools or components, to work out measures for the elimination of defects and to eliminate them if necessary.

We do not want to limit this scope of services to our internal purposes, but also want to offer it to our customers for their benefit.

01

MEASURING MACHINE

Zeiss / Stiefelmayer C160

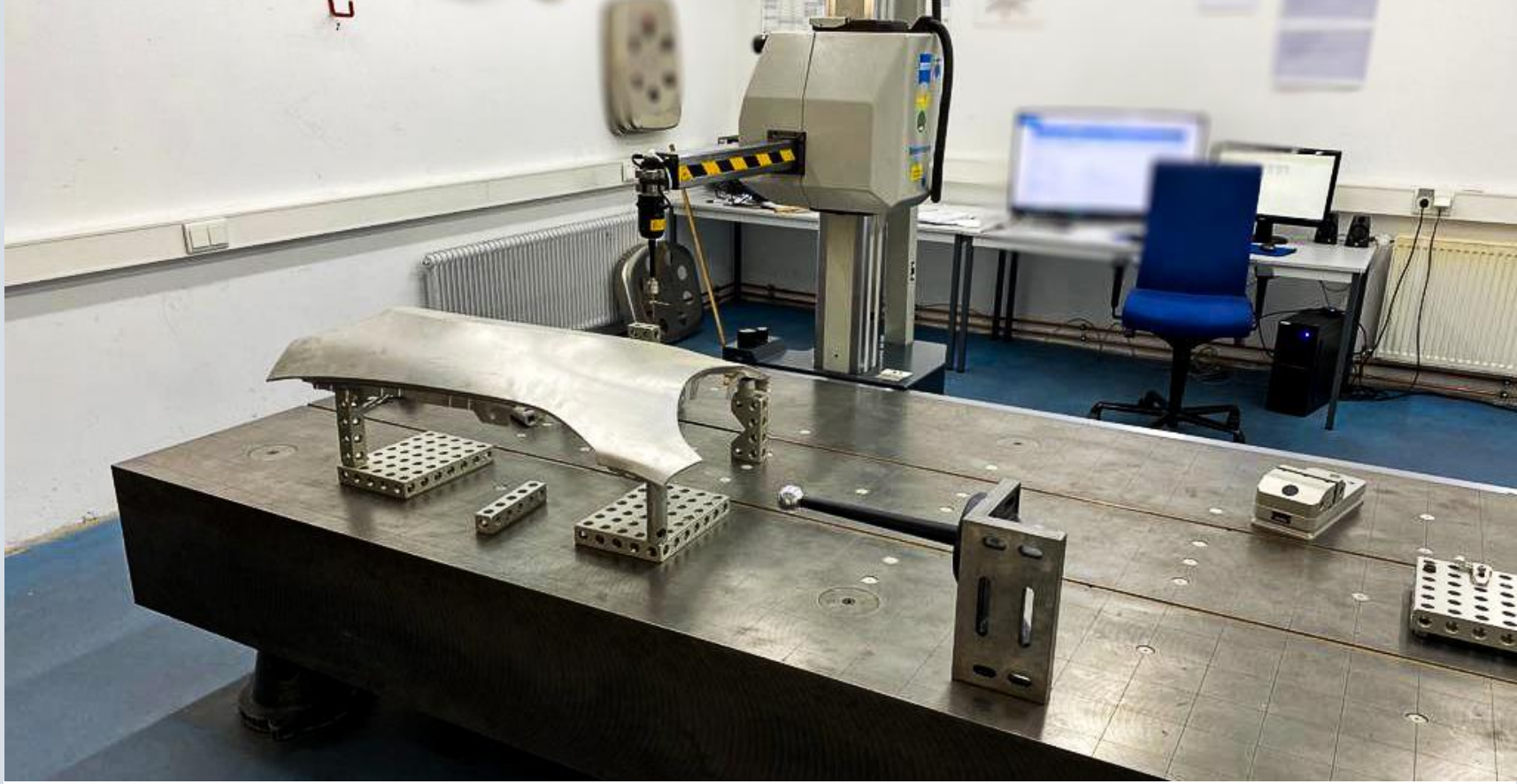
- **Table size 3500mm x 1500mm**
- **Touch-probe-system Renishaw**
- **Software Wenzel Quartis R2018-2**

02

U-WAVE

With the Mitutoyo U-Wave system, measurement data can be read in and evaluated immediately with various handheld devices. In this way, small series measurements can be carried out quickly.

03



FLEXIBLE MODULAR SYSTEM

With our flexible modular system, different recording situations can be represented according to given requirements. We are also happy to use fixtures provided by the customer.

04

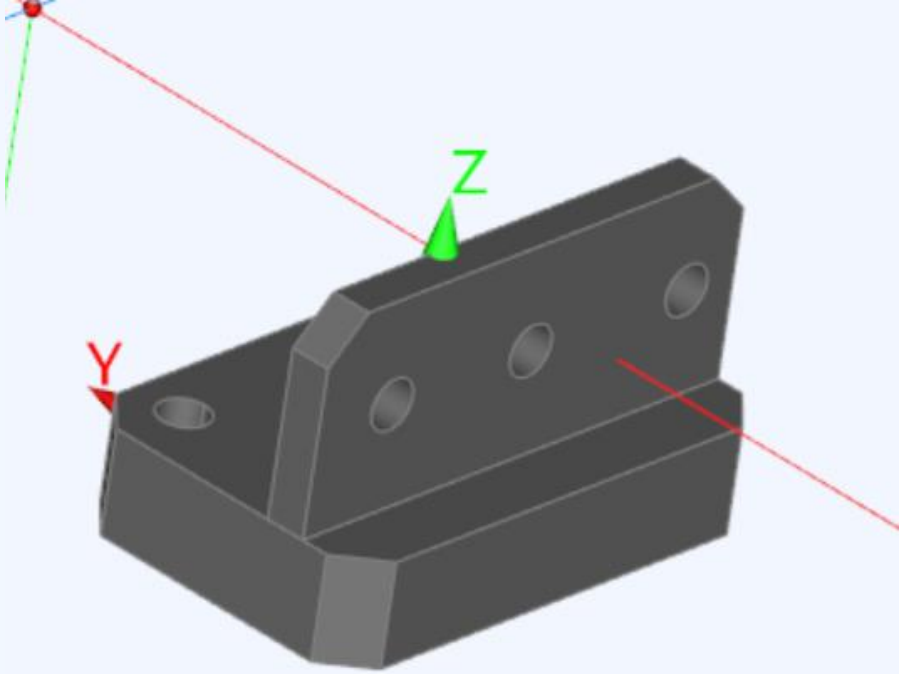
MEASURING

Tactile measurement is currently considered the most accurate measuring method. With our Zeiss/Stiefelmayer measuring machine we can carry out precise single measurements as well as small series measurements according to the requirements of our customers.

05

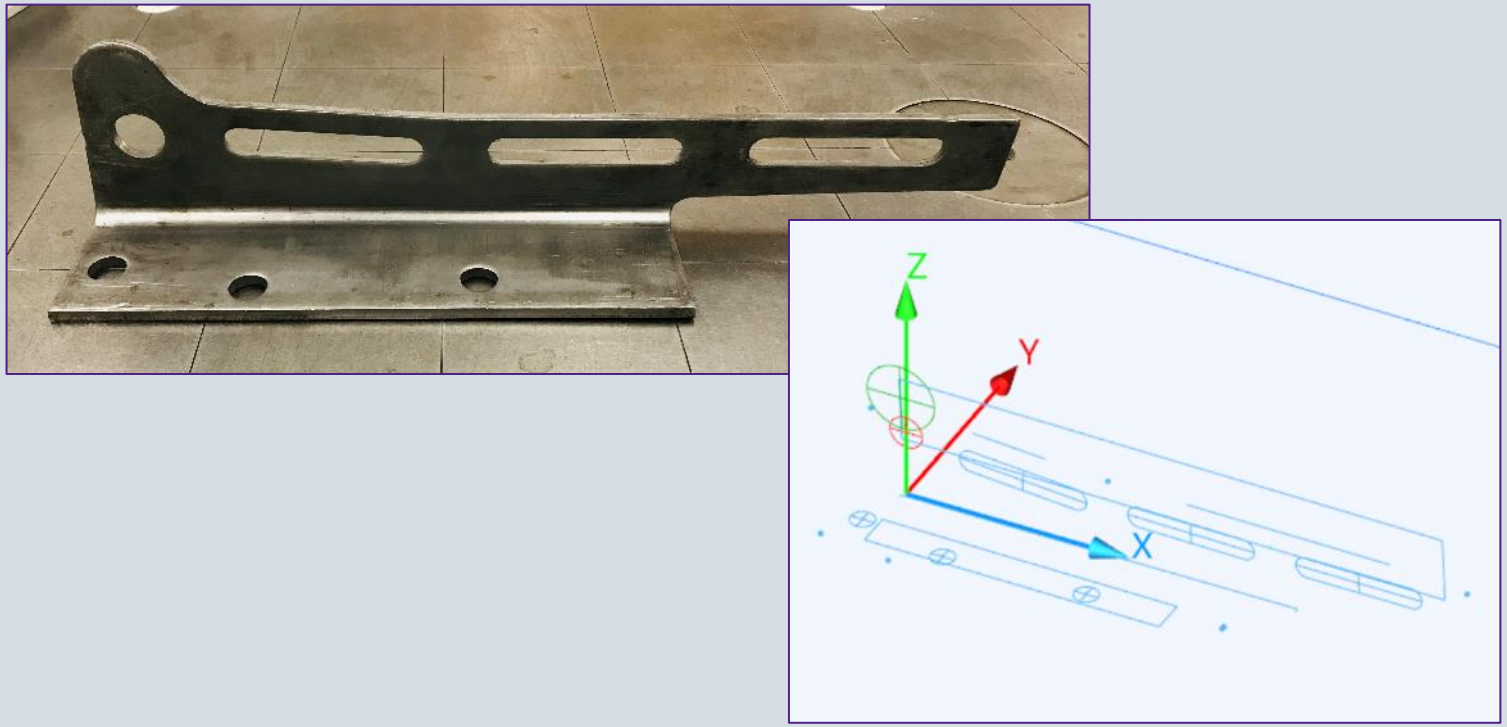
Supported 3D-Formats

- Autodesk Inventor
- Catia
- NX
- Solid Edge
- STEP
- VDA-FS
- ...



COMPARISON AGAINST 3D DATA

By means of the measuring software Quartis R2018-2 a target/actual comparison between the physical component and the theoretical 3D data can be made effortlessly. By converting the data, we support all common 3D file formats.

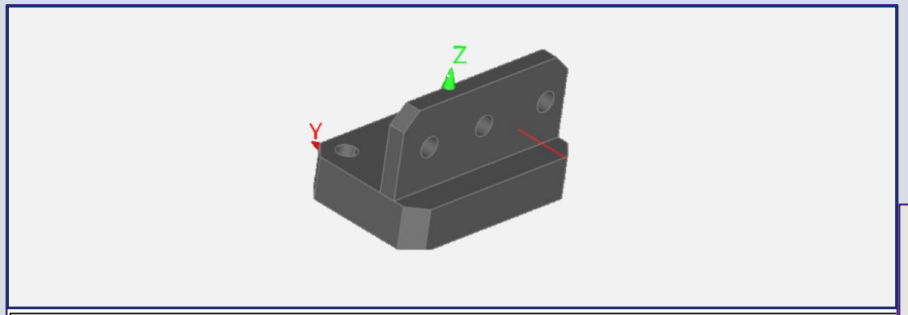


06

MEASURING WITHOUT DATA

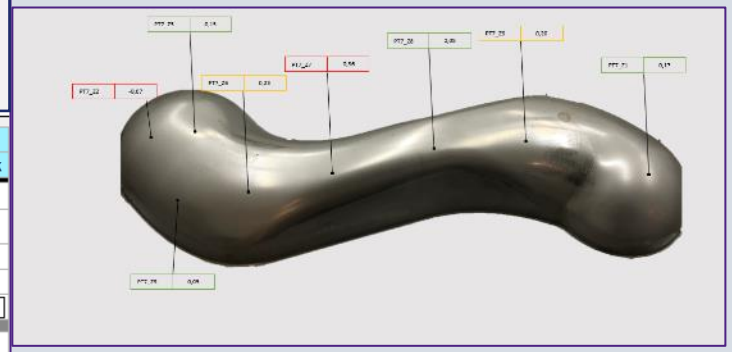
Even the most important features of components whose 3D data are not available can be measured and evaluated by us.

07



ID	Merkmalstyp		Beschreibung "Merkmal"		Wirklänge		
Nennwert	ISO 286	OTol	UTol	Istwert	Abw	%Abw	Grafik
Ausklinkungen							
PT_10_Ausklinkung_unten_re							
1	Abstand Punkt-Punkt [x]		Ausklinkung unten				
x 28.500		1.500	-1.500	28.380	-0.120	-8%	
PT_13_Ausklinkung_oben_re							
1Pos.1	Abstand Punkt-Punkt [x]		Ausklinkung oben				
x 28.500		1.500	-1.500	28.475	-0.025	-2%	
Durchmesser							
CIR_4_Innendurchmesser_92							
2	Durchmesser ø		Pos.2_Innendurchmesser_92				
ø 92.000		0.500	-0.500	92.478	0.478	96%	

tabular view



graphical view

MEASUREMENT REPORTS

For visualization and evaluation of the measurement data, we create customer-specific measurement reports. Depending on the customer's requirements, dimensional, shape, position or tolerance data/deviations can be displayed here.

Statistik - Übersicht

Werkstück-ID	2
Beschreibung	Schwallwand DAG 735x565
Zeichnungs Nr.	2003978
Kommentar	007
Stichprobenumfang	2

ID	Beschreibung	Merkmalstyp	Präfix	Nennwert	UTol	OTol	Mittel	Min	Max	s	Spannweite	Anzahl	>Tol	Cp	Cpk
1	RPS X1	Position [x]	x	143,000	-0,050	0,050	143,000	143,000	143,000	0,000	0,000	1	0	0,000	0,000
2	RPS X2	Position [x]	x	143,000	-0,050	0,050	143,000	143,000	143,000	0,000	0,000	1	0	0,000	0,000
3	RPS X3	Position [x]	x	143,000	-0,050	0,050	143,000	143,000	143,000	0,000	0,000	1	0	0,000	0,000
4	RPS Z4	Position [z]	z	-152,094	-0,050	0,050	-152,094	-152,094	-152,094	0,000	0,000	1	0	0,000	0,000
5	RPS Z5	Position [z]	z	-152,094	-0,050	0,050	-152,094	-152,094	-152,094	0,000	0,000	1	0	0,000	0,000
6	RPS Y6	Position [y]	y	-364,482	-0,050	0,050	-364,482	-364,482	-364,482	0,000	0,000	1	0	0,000	0,000
7	Position 1	Abstand Punkt-Punkt [y]	y	730,000	-0,800	0,800	733,790	733,790	733,790	0,000	0,000	1	1	0,000	0,000
8	Position 2	Abstand Punkt-Punkt [z]	z	560,000	-0,800	0,800	559,853	559,853	559,853	0,000	0,000	1	0	0,000	0,000
9	Position 3_1	Positionstoleranz d [y z]		0,000		4,000	5,186	5,186	5,186	0,000	0,000	1	1	0,000	0,000
10	Position_4_EB_EE	Abstand Punkt-Ebene	d	75,000	1,000	3,000	78,379	78,379	78,379	0,000	0,000	1	1	0,000	0,000
11	Position_4_lh	Abstand Punkt-Ebene	d	75,000	1,000	3,000	78,596	78,596	78,596	0,000	0,000	1	1	0,000	0,000
12	Position_4_rh	Abstand Punkt-Ebene	d	75,000	1,000	3,000	79,061	79,061	79,061	0,000	0,000	1	1	0,000	0,000
13	Position_4_lv	Abstand Punkt-Ebene	d	75,000	1,000	3,000	78,307	78,307	78,307	0,000	0,000	1	1	0,000	0,000
14	Position_4_lr	Abstand Punkt-Ebene	d	75,000	1,000	3,000	77,553	77,553	77,553	0,000	0,000	1	0	0,000	0,000
15	Position_5	Abstand Punkt-Punkt [z]	z	95,000	-1,000	1,000	98,464	98,464	98,464	0,000	0,000	1	1	0,000	0,000
16	Position_6	Abstand Punkt-Punkt [z]	z	75,000	-1,000	1,000	74,166	74,166	74,166	0,000	0,000	1	0	0,000	0,000
17	Position_7	Abstand Punkt-Punkt [z]	z	75,000	-1,000	1,000	72,392	72,392	72,392	0,000	0,000	1	1	0,000	0,000
18	Position_8	Abstand Punkt-Punkt [z]	z	95,000	-1,000	1,000	99,409	99,409	99,409	0,000	0,000	1	1	0,000	0,000
19	Position_9	Abstand Punkt-Punkt [y]	y	200,000	-1,000	1,000	199,725	199,725	199,725	0,000	0,000	1	0	0,000	0,000
20	Position_10	Abstand Punkt-Punkt [y]	y	400,000	-1,000	1,000	403,338	403,338	403,338	0,000	0,000	1	1	0,000	0,000
21	Position 3_2	Positionstoleranz d [y z]		0,000		2,000	4,923	4,923	4,923	0,000	0,000	1	1	0,000	0,000
21Position	11_1	Durchmesser ø	ø	18,000	-1,000	1,000	17,717	17,717	17,717	0,000	0,000	1	0	0,000	0,000
22Position	11_2	Durchmesser ø	ø	18,000	-1,000	1,000	17,994	17,994	17,994	0,000	0,000	1	0	0,000	0,000
23Position	13_1	Durchmesser ø	ø	80,000	-1,000	1,000	80,647	80,647	80,647	0,000	0,000	1	0	0,000	0,000
24Position	13_1	Durchmesser ø	ø	80,000	-1,000	1,000	80,840	80,840	80,840	0,000	0,000	1	0	0,000	0,000
25Position	13_2	Durchmesser ø	ø	80,000	-1,000	1,000	80,910	80,910	80,910	0,000	0,000	1	0	0,000	0,000

08

DATA EXPORT

In addition to statistical evaluations for checking machine/process capability or for Q-DAS, metrological data such as measuring programs, coordinate systems, etc. can also be exported.

09

COMPONENT ANALYSIS

Based on the collected data and the experience of our experts in the field of forming technology and tool making, qualitative defects on the part can be analyzed quickly. The defects can be remedied in the short term by our part rework.

YOUR CONTACT PERSON

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