

Production Metrology Made in Germany

Blum-Novotest GmbH is a recognized developer of leading-edge measuring components, with more than 40 years of experience as a partner in the worldwide machine tool, automotive and aircraft industries.

Our measuring technology, »Made in Germany«, supports customers in various industries in increasing their productivity, as well as the quality of the produced parts. As your reliable partner we support you in the optimization of your processes, and thus help you to maintain a position where you can provide your customers with the highest quality at competitive prices.

Due to the economic efficiency, precision and in-process reliability of our products, the measuring components of Blum are essential instruments for a wide range of metal-cutting industries.



Alexander Blum



Günther Blum



Blum's Quality Management System
is certified according to DIN EN ISO 9001





Blum-Novotest GmbH

Founded in 1968, Blum-Novotest GmbH is today one of the leading manufacturers of the most advanced measuring and testing technology. In three different business divisions the company engineers innovative products which are renowned worldwide for their high precision, quality and efficiency.



Measuring Components

The division Measuring Components develops and produces high-quality measuring technology for machine tools. We offer laser measuring systems and probes for tool setting and monitoring, touch probes for workpiece and tool measurement, as well as sophisticated probing software for comprehensive production control during initial setup.



Measuring and Testing Technology

The division Measuring and Testing Technology offers state-of-the-art, well-proven solutions for dimensional or geometric measurement and crack testing mainly for rotation-symmetric parts in the automotive industry and its component suppliers. Furthermore we are a capable partner for your individual measuring and testing demands.



Test Engineering

NOVOTEST is the Test Engineering division of Blum-Novotest GmbH. NOVOTEST plans, develops and manufactures test benches for function, endurance and lifetime testing for the automotive, hydraulics and aerospace industries. The scope of supply and services includes planning, designing and construction, as well as the integration into our customers' automation systems.

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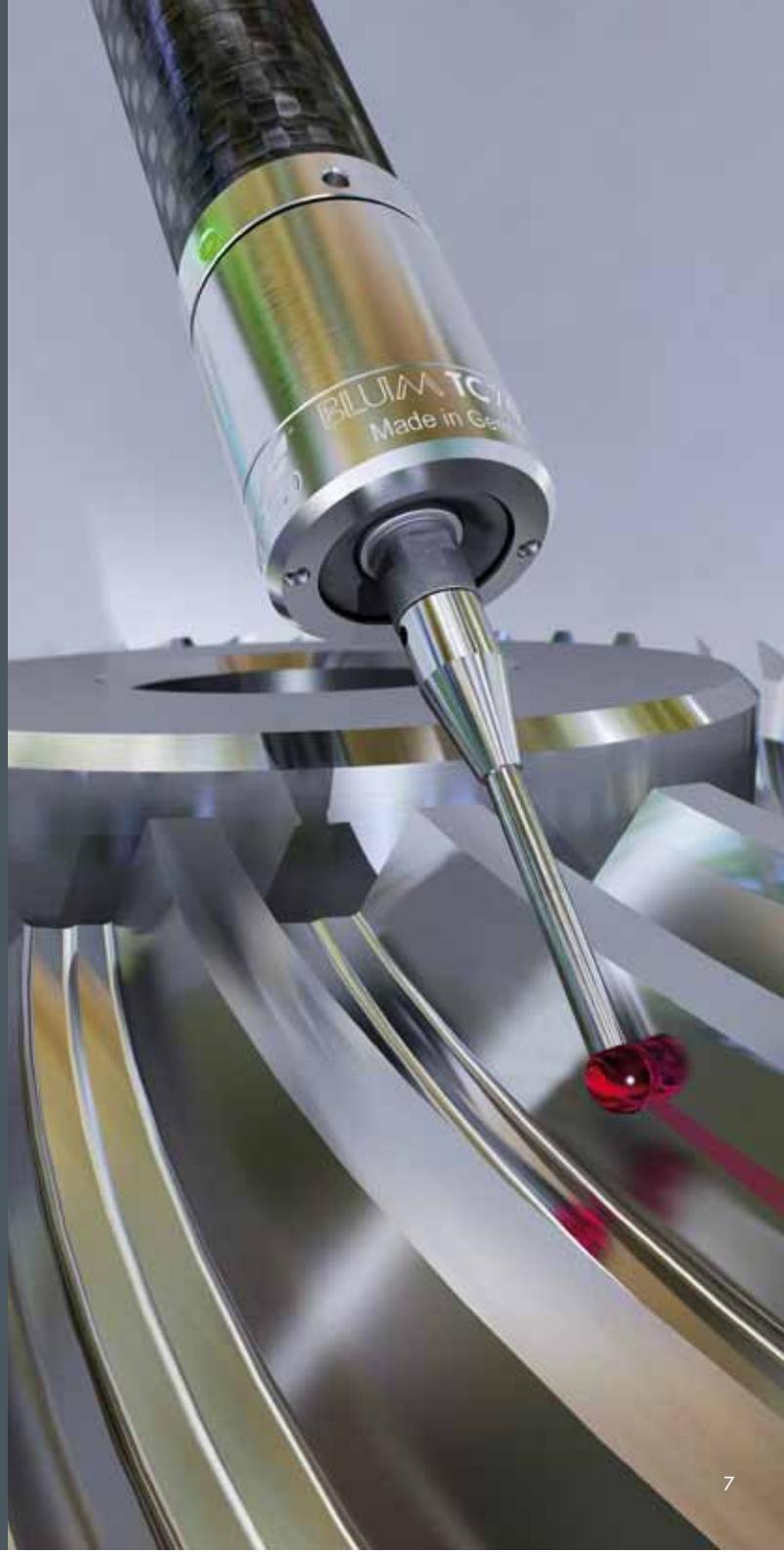
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42

43

44





	Micro Single	Micro Single NT	Mini NT	Micro Compact NT	Nano NT	NT-H ²⁾³⁾	NT-H 3D ¹⁾	
•	•	•	•	•	•	•		 Tool Measurement
	•	•	•	•	•	•		 NT Technology
					•			 NT-H Technology
						•		 NT-H 3D Technology
						•		 shark360 Technology
•	•	•	•	•	•	•		 Tool Breakage Detection
	•	•	•	•	• ²⁾	•		 Tool Length Measurement
	•	•	•	•	•	•		 Tool Radius Measurement
			•	•	•	•		 Tool Form Measurement
			•	•	•	•		 Tool Form Monitoring
•	•	•	•	•	•	•		 Single Cutting Edge Monitoring
			•	•	•	•		 RunoutControl
			•	•	•	•		 ToolTipControl
			•	•	•			 GrindControl
			•	•	•	•		 MicroWearControl
	•	•	•	•	• ³⁾	•		 Axes Compensation

1) For turning and milling tools

2) Optimization of the absolute accuracy

3) Temperature compensation in 3 axes



Unbeatably precise and reliable. In order to achieve the greatest possible accuracy in measuring tools in the machining centre, Blum recommends the use of compact support systems. The Micro Compact NT system is by default available up to a length of 1000 mm. The exceedingly compact Nano NT was designed especially for the requirements of high-end machines in micromachining.



NT Technology



NT-H Technology



Tool Breakage Detection



Tool Length Measurement



Tool Radius Measurement



Tool Form Measurement



Tool Form Monitoring



Single Cutting Edge Monitoring



RunoutControl



ToolTipControl



GrindControl



MicroWearControl



Axes Compensation

Nano NT – for microtools from $\varnothing 5 \mu\text{m}$

All cutting geometries



Detection of micro-wear

Reliable – patented NT Electronics



LaserControl NT | Single Systems

Modular and precise – Micro Single NT and Mini NT are the single versions from the LaserControl NT series. The separation of transmitter and receiver allows for a flexible integration into a wide variety of machine types. They are, for instance, used if the installation of support systems is impossible due to the design of the machine tool.



NT Technology



Tool Breakage Detection



Tool Length Measurement



Tool Radius Measurement



Single Cutting Edge Monitoring



Axes Compensation

Mini NT – highly precise single system

Indispensable – the Blum pneumatic unit



100% reliable due to Blum protection system

Solution for every machining operation



The all-rounder for any tool. LaserControl NT-H 3D is a compact and highly precise system for measuring of the whole range of tools in turning-milling centres. The measurement of milling tools via laser can be carried out contactless under nominal rotation speed. Turning tools can be measured quickly and safely with the adapted touch probe. Thanks to built-in blowing nozzles even coolant or chips on tool or stylus are not a problem.



NT Technology



NT-H 3D Technology



shark360 Technology



Tool Breakage Detection



Tool Length Measurement



Tool Radius Measurement



Tool Form Measurement



Tool Form Monitoring



Single Cutting Edge Monitoring



RunoutControl



ToolTipControl



MicroWearControl



Axes Compensation

Measurement of all tools with one system

shark360 measuring mechanism –
Use of cranked styli



Customer-specific laser system

Complete solution with software



Overview Tool Setting Probes

	Z-Nano	Z-Nano IR	Z-Nano RC	Z-Pico	Z-MT	Z-3D	TC53-20		TC54-20	TC63-20	TC64-20		
•	•	•	•	•	•	•			•	•	•		Tool Measurement
	•					•			•				Infrared Transmission
		•							•	•			Radio Transmission
•			•	•	•								Hardwired
•	•	•	•										Linear Working Principle
				•		•			•	•	•		shark360 Technology
•	•	•	•	•	•	•			•	•	•		Wear-Free Measuring Mechanism
						•			•				Modular System
•	•	•	•	•	•	•			•	•	•		Tool Breakage Detection
•	•	•	•	•	•	•			•	•	•		Tool Length Measurement
				•	•	•			•	•	•		Tool Radius Measurement
•	•	•	•	•	•	•			•	•	•		Axes Compensation
43	43	43	28	43	48	43			43	43	43		System diameter in mm



Tool Setting Probes Z-Series

Robust and economic – the compact tool setting probes are extremely economic solutions for a fast tool breakage detection and highly precise length measurements in machine tools. The well-proven design and the wear-free optoelectronic measuring mechanism with linear working principle, provide the highest reliability under the most adverse manufacturing conditions.



Hardwired



Infrared Transmission



Radio Transmission



Linear Working Principle



Wear-Free



Tool Breakage Detection



Tool Length Measurement



Axes Compensation

Z-Pico – for micromachining
(from 30 μm tool diameter)



Z-Nano: tool measurement with
up to 2 m/min; from tool \varnothing 0,1 mm



Optional:
chip protection & blowing nozzle



Z-Nano IR – the infrared version



Tool Setting Probes 3D-Series

Versatile and economic – the 3D tool setting probe series comprises universally applicable probes for the measurement of length, radius and tool breakage in the machine tool. Almost all probes in the series use the proven shark360 measuring mechanism which is outstanding in its unparalleled precision and longevity.



Hardwired



Infrared Transmission



Radio Transmission



shark360 Technology



Wear-Free



Tool Breakage Detection



Tool Length Measurement



Tool Radius Measurement



Axes Compensation

Z-3D – the hardwired version



Z-MT – hardwired and with shark360 measuring mechanism



Blum infrared system with DUO-Mode



Tool length measurement



Overview **Touch Probes**

TC50 TC52		TC51	TC53-10		TC53-30	TC54-10	TC60 TC62		TC61	TC63-10		TC63-30	TC64-10		TC76	TC76-DIGILOG		
•	•	•	•	•	•	•	•	•	•	•			•	•	•			Workpiece Measurement
					•								•	•				Tool Measurement
•	•	•	•	•	•													Infrared Transmission
						•	•	•	•				•					Radio Transmission
														•	•			Hardwired
•						•												Multidirectional
	•						•											Bidirectional
		•	•	•	•			•	•				•	•				shark360 Technology
															•			shark360 DIGILOG
•	•	•	•	•	•	•	•	•	•	•			•	•	•			Wear-Free Measuring Mechanism
		•	•					•	•					•	•			Modular System
•	•	•	•	•	•	•	•	•	•	•			•	•	•			Single & Mass Production
•					•													Contour Measurement
	•	•	•	•	•		•	•	•				•	•	•			Pulling Measurement
•	•	•	•	•	•	•	•	•	•				•	•	•			Axes Compensation
															•			ContourScan
															•			Workpiece Inspection
				•									•	•				Tool Length Measurement
				•									•	•				Tool Radius Measurement
				•									•	•				Tool Breakage Detection
63/40	63	40	63	40	63/40	63	40	63					40	25	25			System diameter in mm



Touch Probes TC50/52 | TC60/62

Faster, more economic, more precise – the advantages of this high-speed touch probe series can be summarized as simply as that. The multidirectional probes convince with the latest measuring mechanism technologies with optoelectronic signal generation, the highest measuring speed (up to 3 m/min) and perfect touch characteristics without disadvantageous lobing.



Infrared Transmission



Axes Compensation



Radio Transmission



Multidirectional



Wear-Free



Single & Mass Production

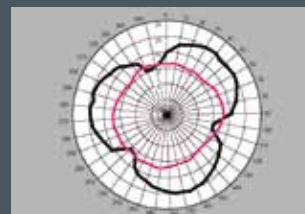


Contour Measurement

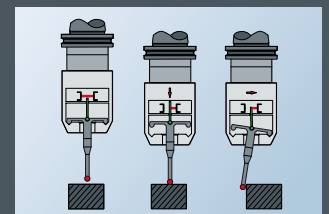
Measurement of contours



TC52 – for small machine tools



More precise due to non-lobing measuring mechanism



Optoelectronic measuring mechanism



Touch Probes TC51 | TC61

Perfect for fast machine tools – the touch probes were specifically developed for the requirements of highly productive machines. The unique bidirectional measuring mechanism with optoelectronic signal generation possesses a superior accuracy and permits measuring speeds of up to 5 m/min. The TC51 and the TC61 are the only touch probes worldwide, that allow quick pulling measurements in Z+ permanently and without wear.



Infrared Transmission



Pulling Measurement



Radio Transmission



Bidirectional



Wear-Free



Mass Production

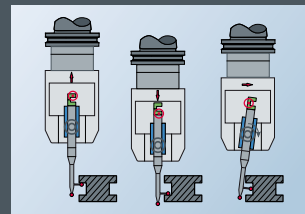


Axes Compensation

TC51 – extremely fast and precise



Ideal for mass production



Highly precise –
bidirectional measuring mechanism



IC56 – modern, reliable transmission



Touch Probes TC53 | TC63

Innovative, variable, highly precise. The modular TC53/63 series comprises versatile touch probe solutions in order to quickly adapt to complex, customer-oriented measuring tasks. All probes use the patent shark360 measuring mechanism which sets a new standard with regard to precision and reliability due to a modified face gear and the optoelectronic signal generation.



Infrared Transmission



Axes Compensation



Radio Transmission



Pulling Measurement



shark360 Technology



Modular System



Wear-Free



Single & Mass Production

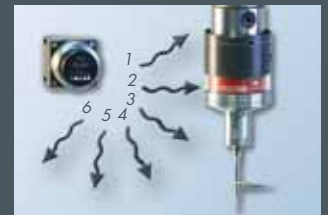
TC63-30 –
application in turning-milling centre



Measurement inside an aircraft turbine



Serial production of gearboxes



Up to 6 touch probes with one receiver



Touch Probes TC54-10 | TC64-10

The touch probes TC54-10 and TC64-10 combine all advantages of the shark360 measuring mechanism with the compactness of a multidirectional Blum standard touch probe. Due to the robust design and the wear-free, face-gearred measuring mechanism, the systems are perfectly suited for the measurement of tools and workpieces in turning and milling centres.



Infrared Transmission



Radio Transmission



shark360 Technology



Wear-Free



Single & Mass Production



Axes Compensation



Pulling Measurement



Tool Length Measurement



Tool Radius Measurement

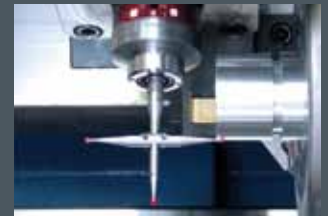


Tool Breakage Detection

Pulling and pushing measurement



Workpiece measurement in a turning centre



Tool measurement



Patented shark360 measuring mechanism with face gear



Touch Probe TC76

The compact touch probe TC76 is used for a fast and automatic measurement of tools and workpieces in grinding, turning and milling centres. Due to a modified face gear and the optoelectronic signal generation the built-in patent shark360 measuring mechanism sets a new standard with regard to precision and reliability.



Hardwired



shark360 Technology



Wear-Free



Modular System



Single & Mass Production



Axes Compensation



Pulling Measurement



Tool Length Measurement



Tool Radius Measurement



Tool Breakage Detection

Workpiece measurement
in grinding centre



TC76 with shark360 measuring mechanism:
Very latest pioneering technology



shark360 – measurement in Z+/Z-



Touch Probe TC76-DIGILOG

The digilog revolution. DIGILOG = high-precision digital measurement (in switch mode) and cyberspeed scans in analogue mode. With the help of the analogue scan the time spent on measuring complex workpieces, free-form surfaces and contours is radically reduced. The touch probe is applicable on turning, milling and grinding machines. Maximum precision is guaranteed through filtering and averaging of the measuring values.



Hardwired



Single & Mass Production



shark360 DIGILOG



Pulling Measurement



Wear-Free



Modular System

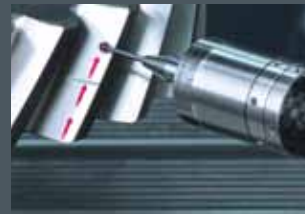


Workpiece Inspection

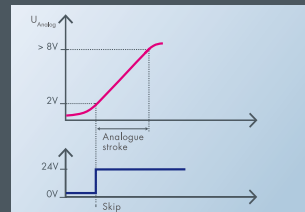
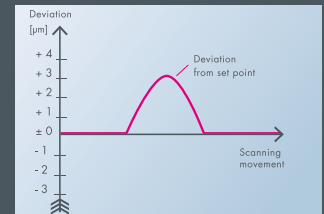


ContourScan

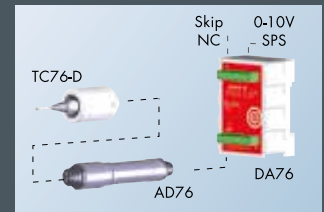
Scan for the testing for machining errors



Machining error is being detected



Digilog – switching & analogue measuring



System overview



Software FormControl V4

Measurement by mouse click – with the measuring software FormControl the inspection of workpieces in the machining centre is as easy as that. Regardless of whether you are dealing with contours or workpieces with standard geometries, the operator will already recognize machining errors on the machine. This allows re-work in the initial setting. Manufacturing processes are simplified and quickened, transport and storage time between machine tool and measuring machine is omitted.



Contour Measurement



Diameter Measurement



Position Measurement



Roundness Measurement



Cylindricity Measurement



Concentricity Measurement



Workpiece Inspection



Distance Measurement



Angle Measurement

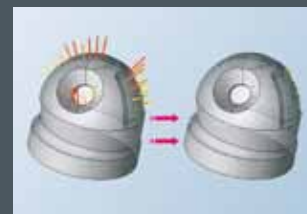


Reference/Chain Dimensioning

Measuring & appraisal of standard geometries



Measuring of contours



Alignment function & Best-fit



Compiling measurement reports



Overview BG-Series

	BG40	BG41	BG42	TC80	
•	•	•			Workpiece Measurement
			•		Temperature Measurement
•	•	•	•		Infrared Data Transmission
•	•	•			Wear-Free Measuring Mechanism
•	•	•	•		Mass Production
•	•	•			Diameter Measurement
	•	•			Position Measurement
	•	•			Roundness Measurement
	•	•			Cylindricity Measurement
	•	•			Concentricity Measurement





Bore Gauges **BG40** | **BG41** | **BG42**

Blum bore gauges are machine-independent measuring systems for the quality control of tightly tolerated fits in high-productive machining centres and transfer lines. The determination of compensation values in the initial setting permits a high precision process control, for instance in the production of engines, valves or compressors.



Infrared Data Transmission



Cylindricity Measurement



Wear-Free



Concentricity Measurement



Mass Production



Diameter Measurement



Position Measurement



Roundness Measurement

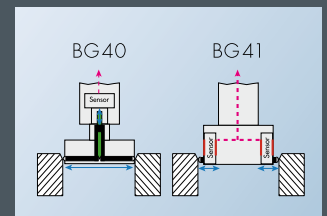
In-process measurement of steering knuckle before slitting: diameter



Pump bore in a truck motor block: diameter & concentricity



High-pressure hydraulic valve: diameter; precision 0,1 μ m



Measuring principles of the BG series



Temperature Measuring System TG80

Temperature under control – the temperature measuring system TG80 has been developed for the determination of the workpiece temperature before and during the machining process. Sensors integrated into the clamping device detect the current workpiece temperature which is then transmitted wirelessly to the machine control. On the basis of this data NC controls can calculate compensation values and directly incorporate them into the machining process. The application areas are dry processing or the machining of workpieces with severely unsteady temperatures before machining.



Temperature Measurement



Infrared Data Transmission



Mass Production

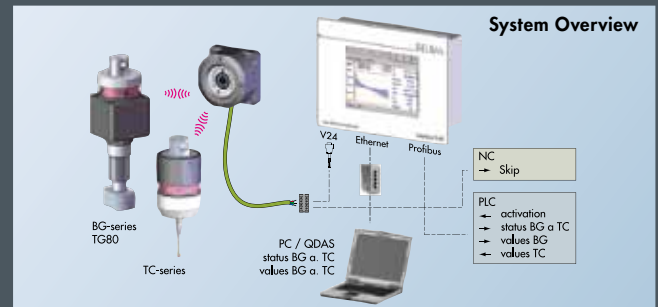


Temperature sensor and transmission unit

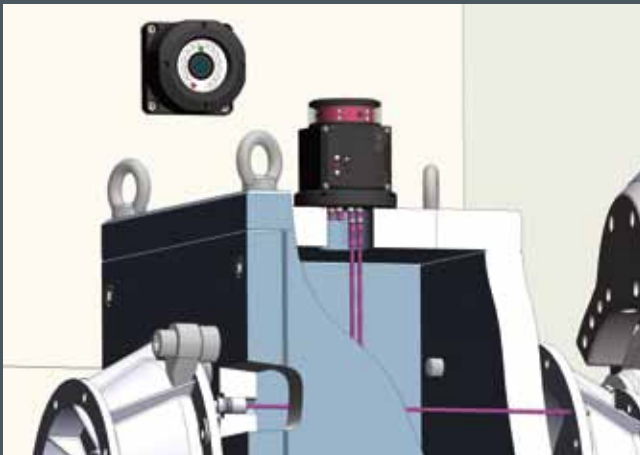


Interface IF48

The IF48 is a data interface for the BG-/TC series and TG80. It conducts measurements, carries out the analysis of the measured values and shows them on the display in a well-arranged manner. Further options are the storage, statistical evaluation and visualization of the results. In addition, it allows for an automatic process control by transferring measurement and compensation values to the machine control.



Connection via Profi-Bus or Ethernet, etc.

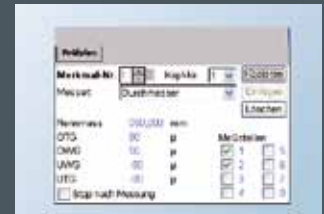


Integration of sensors in the workpiece clamping device. Wireless data transmission via infrared.

Measuring computer with touch screen



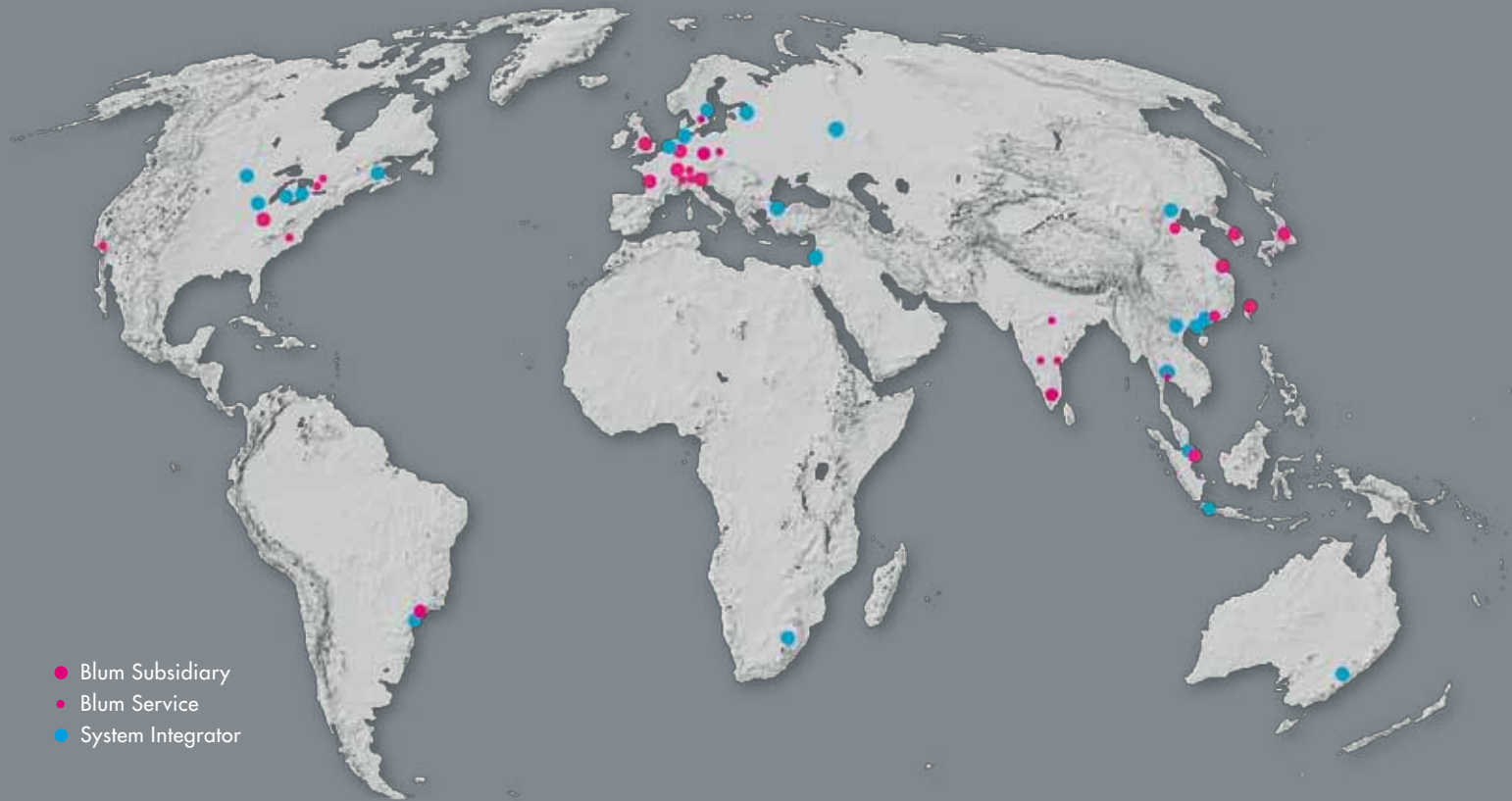
Managing inspection plans with up to 99 features



Process automation & process control



Q-DAS data export



- Blum Subsidiary
- Blum Service
- System Integrator

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That's what we offer > **Product Groups**



Touch Probes



Tool Setting Probes



LaserControl



Bore Gauges



FormControl



Special Measuring Systems



Transmission Systems



Software



Accessories



Service & Support

That's what our products are for > **Applications**



Tool Measurement



Workpiece Measurement



Temperature Measurement

That's what makes our products unique > **Implemented Technologies**



Multidirectional



Bidirectional



shark360 Technology



shark360 DIGILOG



Hardwired



Linear Working Principle



Infrared Transmission



Radio Transmission



Infrared Data Transmission



NT Technology



NT-H 3D Technology



NT-H Technology



Modular System



Wear-Free Measuring Mechanism

That's what our products can be used for > **Product Features**



Contour Measurement



Single & Mass Production



Axes Compensation



Pulling Measurement



Tool Length Measurement



Tool Radius Measurement



Tool Breakage Detection



Single Cutting Edge Monitoring



Tool Form Measurement



Tool Form Monitoring



RunoutControl



ToolTipControl



GrindControl



MicroWearControl



Workpiece Inspection



ContourScan



Diameter Measurement



Position Measurement



Roundness Measurement



Cylindricity Measurement



Concentricity Measurement



Distance Measurement



Angle Measurement



Reference/Chain Dimensioning



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