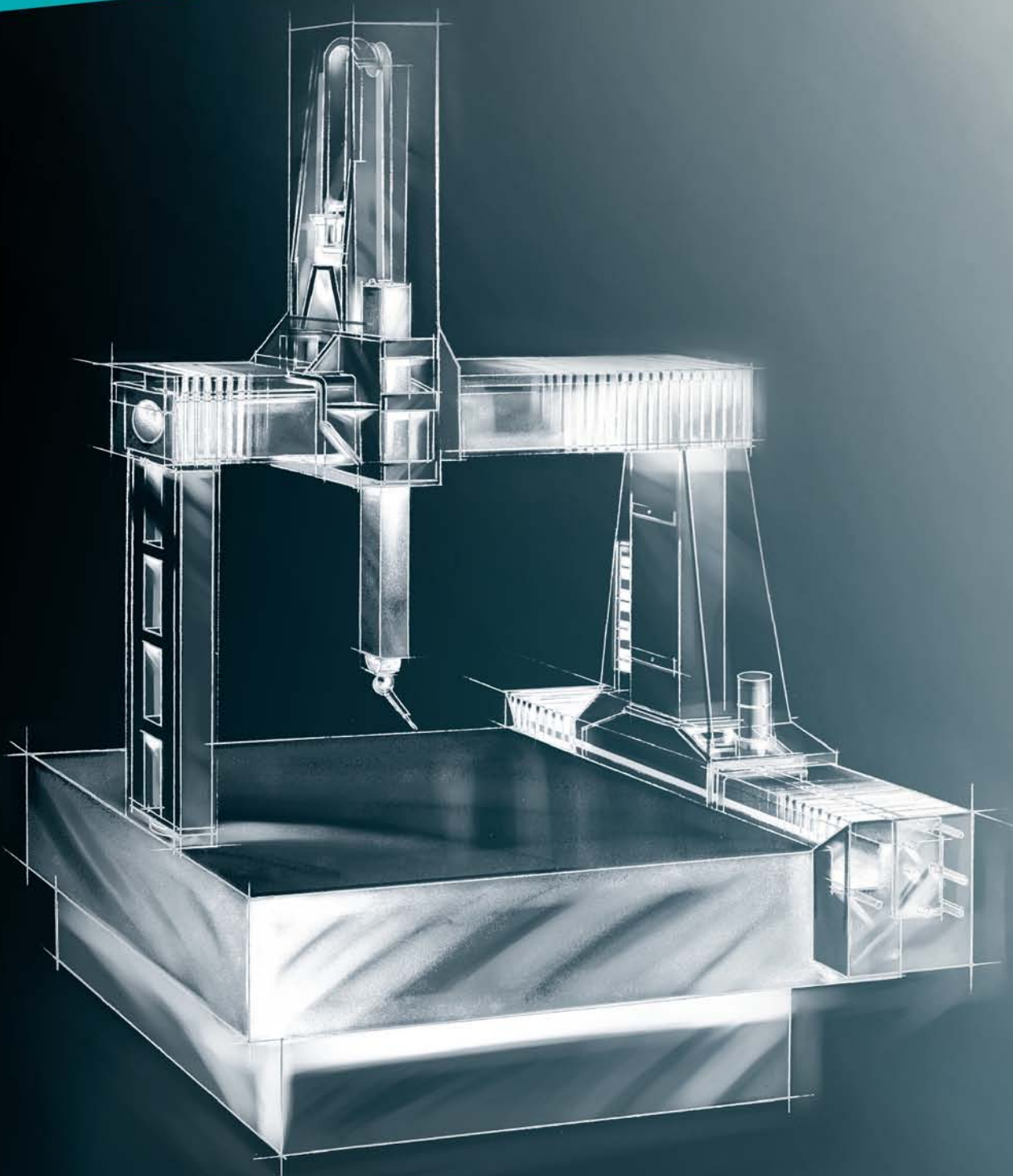


# The XO & LH Series of Bridge Coordinate Measuring Machines

**WENZEL**<sup>®</sup>

The company of  $\mu$



# Wenzel Coordinate Measuring Machines

The Power of Precision

**WENZEL**<sup>®</sup>

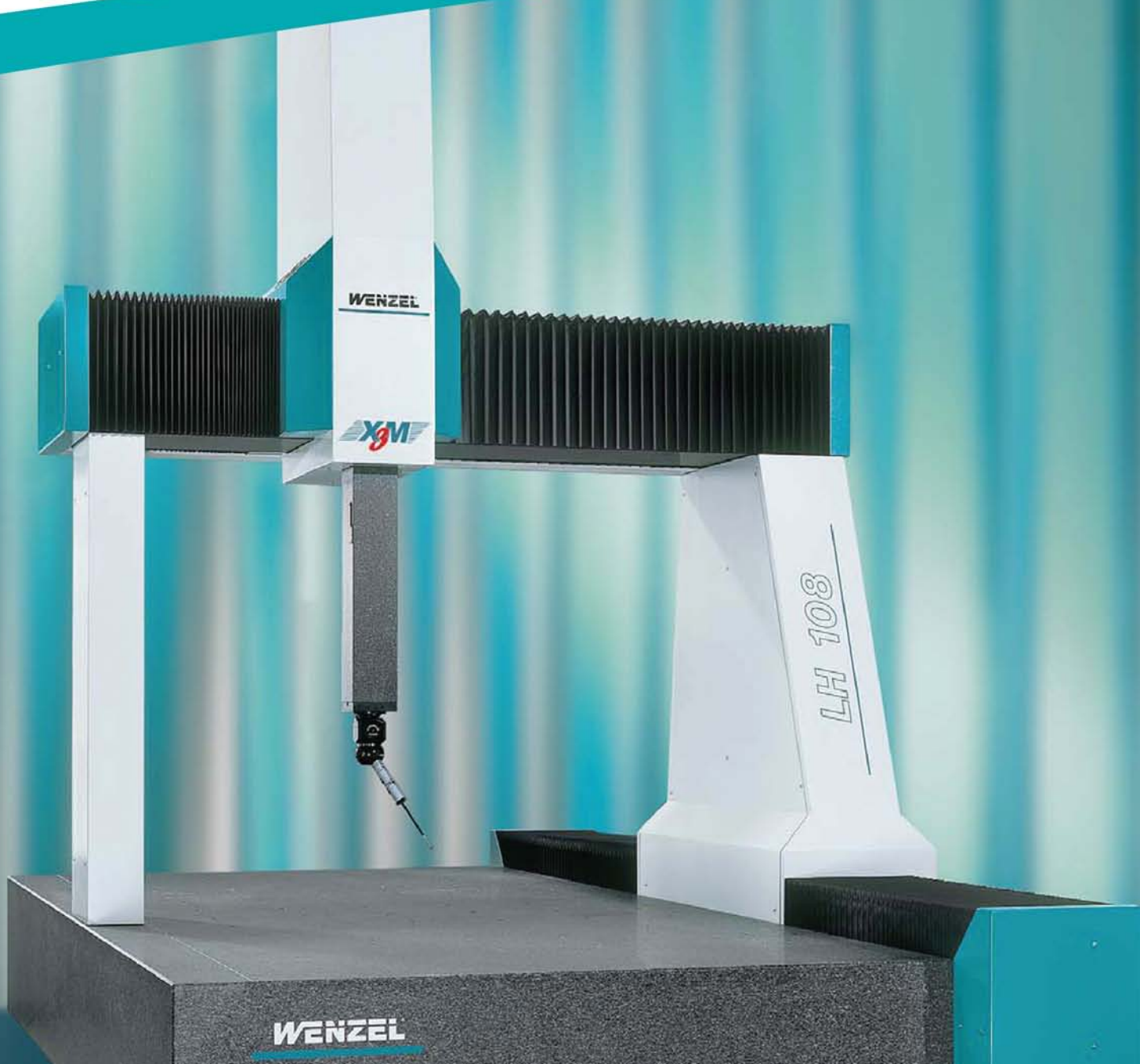
The company of  $\mu$

Your Quality Assurance – Our Business. Since 1968 Wenzel CMMs have provided high precision measurements. Wenzel is a \$100 million corporation; one of the largest CMM suppliers, and the only CMM builder remaining to hand-select and lap its own granite, ensuring that CMM intrinsic build quality is inbuilt and controlled by Wenzel, at Wenzel.

Over 6000 installed Wenzel CMMs in constant daily usage tell the story.

The Wenzel Bridge CMM series stand out for German engineering and quality at an outstanding price-performance ratio.

## Wenzel the company of micron ( $\mu$ )



# The Flagship for High Speed Scanning

Fast and Accurate



The precision and dynamics of the XO & LH series combined with superb stiffness of the CMM structure provides class leading scanning accuracies and maximum flexibility when packaged with the Renishaw PHI0M Probe Head and SP25 Scanning Probe, SP5D or ultimately

REVO™ 5 axis scanning head. The X<sub>3</sub>M (extreme) stands for fast form checks, extreme accuracy and fast scanning of any 2D and 3D curve or surface.

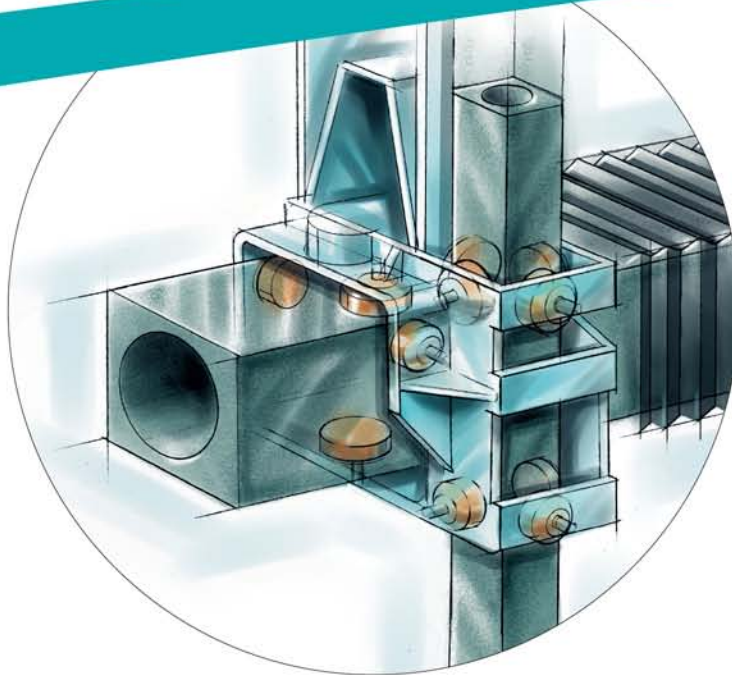
Precision High Speed Scanning has a new name 'X<sub>3</sub>M' and supplied by Wenzel.



## The Wenzel Advantage – The use of Metrological Materials for CMM build

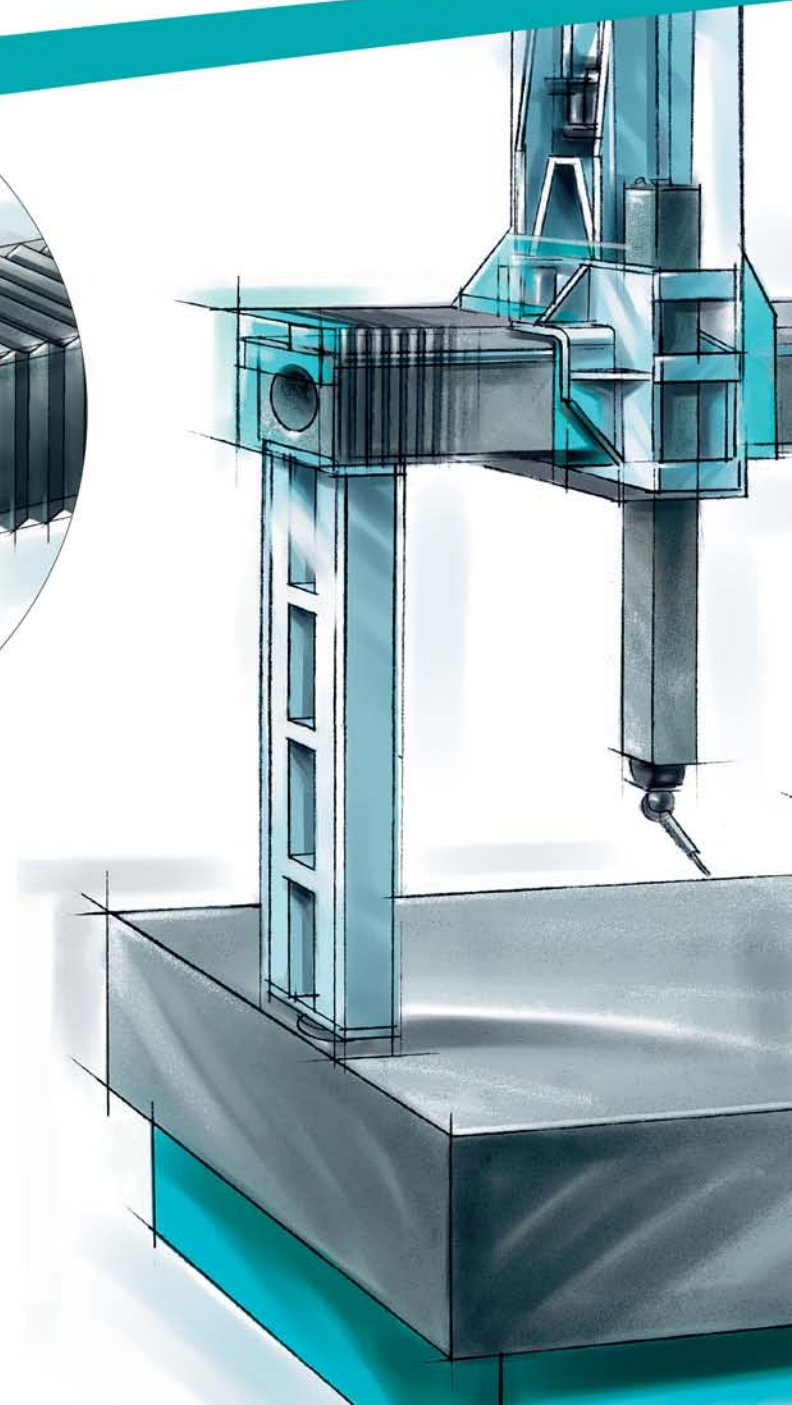
Metrological Material	Specific Weight (Kg/dm <sup>3</sup> )	Expansion Coefficient (1/K)	Temp. Diffusion Rate (W/mK)	Elasticity Module (103N/mm <sup>2</sup> )	Material Ranking
Steel	7.25	10.4x10 <sup>-6</sup>	42-63	90-180	+++++++
Aluminum	2.7	23.8x10 <sup>-6</sup>	210	72	+
Ceramic	3.85	8.0x10 <sup>-6</sup>	28	370	+++++++
Granite	2.8	6.5x10 <sup>-6</sup>	3.5	NIL	+++++++

Aluminum CMMs offer no benefit to the end user, they were introduced to the industry for purely economic reasoning. Manufacturers of aluminum CMMs “claim” aluminum is the perfect material for CMM build: how so since its coefficient of expansion is almost 4 times that of granite and yet its specific weight is only 3% less than granite, Aluminum IS NOT a Metrological Material; Granite IS; that’s why all CMMs use granite tables. The Wenzel Bridge CMMs are no compromise metrologically sound CMMs with long life.



FEM/CAD optimized components guarantee highest rigidity with reduced mobile mass.

Pre-stressed, high accuracy, hand lapped air bearing guideways. The Y-axis is integrated in the granite base plate, guaranteeing excellent long-term stability.



# Precision in Detail

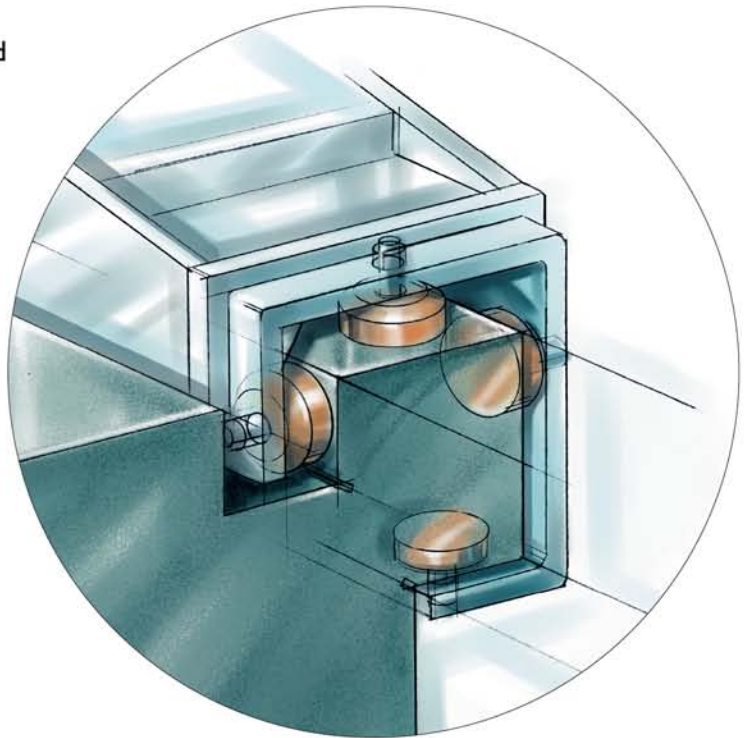
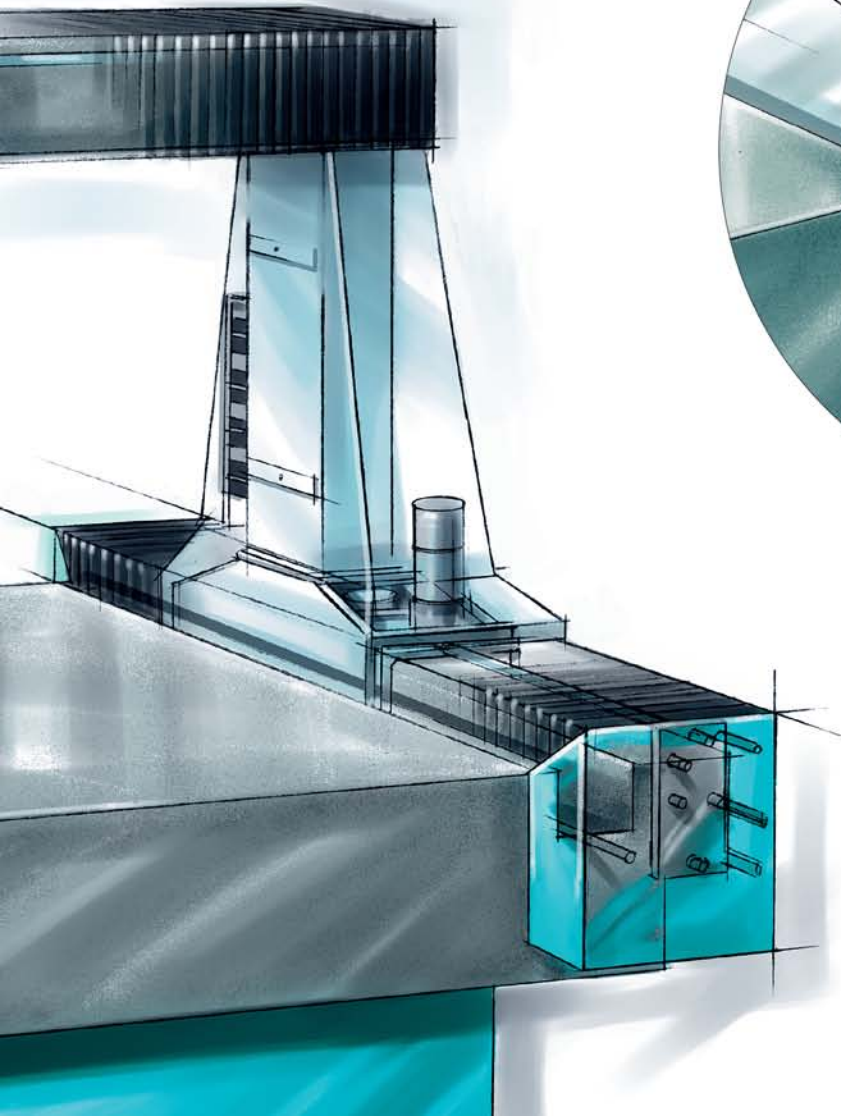
## The LH features

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- CMM base plate, cross-beam and quill are made of natural dark granite guaranteeing identical thermal conditions for each axis
- Y-axis guideway directly integrated in the base plate
- Adjustable Z axis pneumatic counter balance
- Air bearing guideway elements in all axes for wear-free, smooth operation
- X & Y guideways protected by bellows. Compact design and easy maintenance access features
- Optional low cost pneumatic active vibration system can be added without modifications to fabricated CMM base
- Optional thermal compensation

The granite bridge beam and Z ram are core drilled to remove mass and optimize machine dynamics.



Symmetric guideway profiles with reduced wall thicknesses: optimal for calculable expansion behavior with changing working temperatures. Bellows protect the cross-beam as well as the Y guideway against environmental and external influences.

# XO from Wenzel: A CMM a world above its competitors

The Wenzel XO is a cost effective derivative of the world renowned Wenzel LH series of intrinsically accurate CMMs. Wenzel is the only major remaining CMM builder still manufacturing from metrological materials to precise tolerances and assembled by craftsmen with intrinsic accuracy.

Being a Global CMM supplier for Wenzel doesn't mean being everywhere; it really means being welcome everywhere, a Wenzel CMM is built to microns, measures to microns for life.

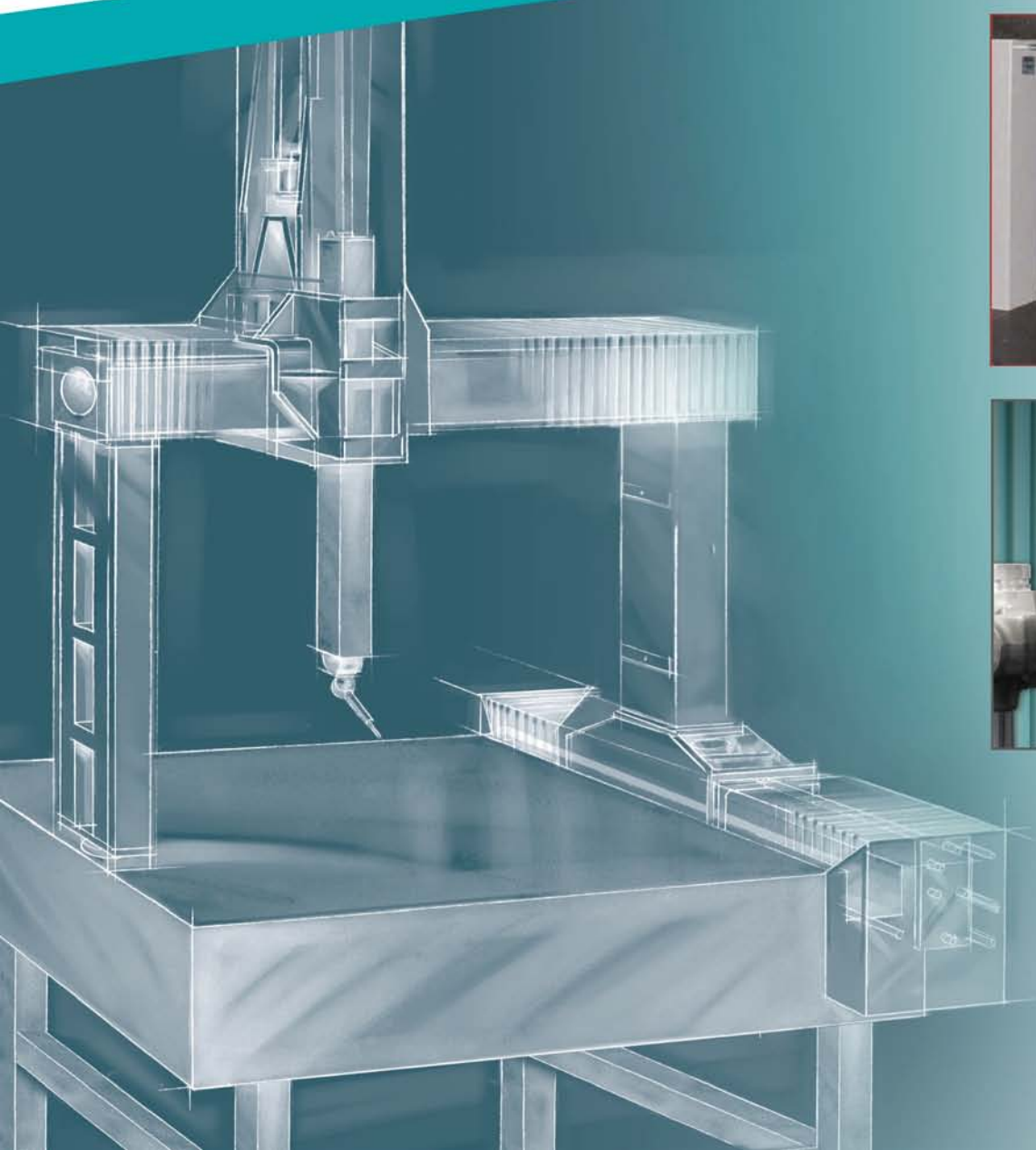
XO utilizes the industry standard Renishaw TP20 and TP200 probing systems and is also available with the new high speed PH20 head.

It's not a revolution. It simply a derivative, a no compromise CMM with proven performance for the budget conscience customer. Maximum performance, no frills, and affordable price.

With accuracy at its heart, XO is an accurate CMM straight and true; not a machine with skin deep accuracy derived only from a mathematical error map.

**Now everyone can afford an accurate Wenzel CMM.**

**It's another Wenzel Classic.**



# The Wenzel XO Series CMMs

Volumetric Accuracies - ISO 10360

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Model	Renishaw TP20 Probe	Renishaw TP200 Probe	Renishaw SP25 Probe
	Accuracy	Accuracy	Accuracy
	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>
XO 55	2.7+L/300	2.3+L/300	2.1+L/300
XO 87	2.9+L/300	2.5+L/300	2.4+L/300
XO 107	3.2+L/300	2.8+L/300	2.7+L/300



**XO 55**  
mm

X	Y	Z
500	700	500
500	1000	500

max. speed 3D - 520mm/s  
max. acceleration 3D - 2,000mm/s<sup>2</sup>



**XO 87**  
mm

X	Y	Z
800	1000	700
800	1500	700
800	2000	700

max. speed 3D - 520mm/s  
max. acceleration 3D - 1,500mm/s<sup>2</sup>



**XO 107**  
mm

X	Y	Z
1000	1500	700
1000	2000	700

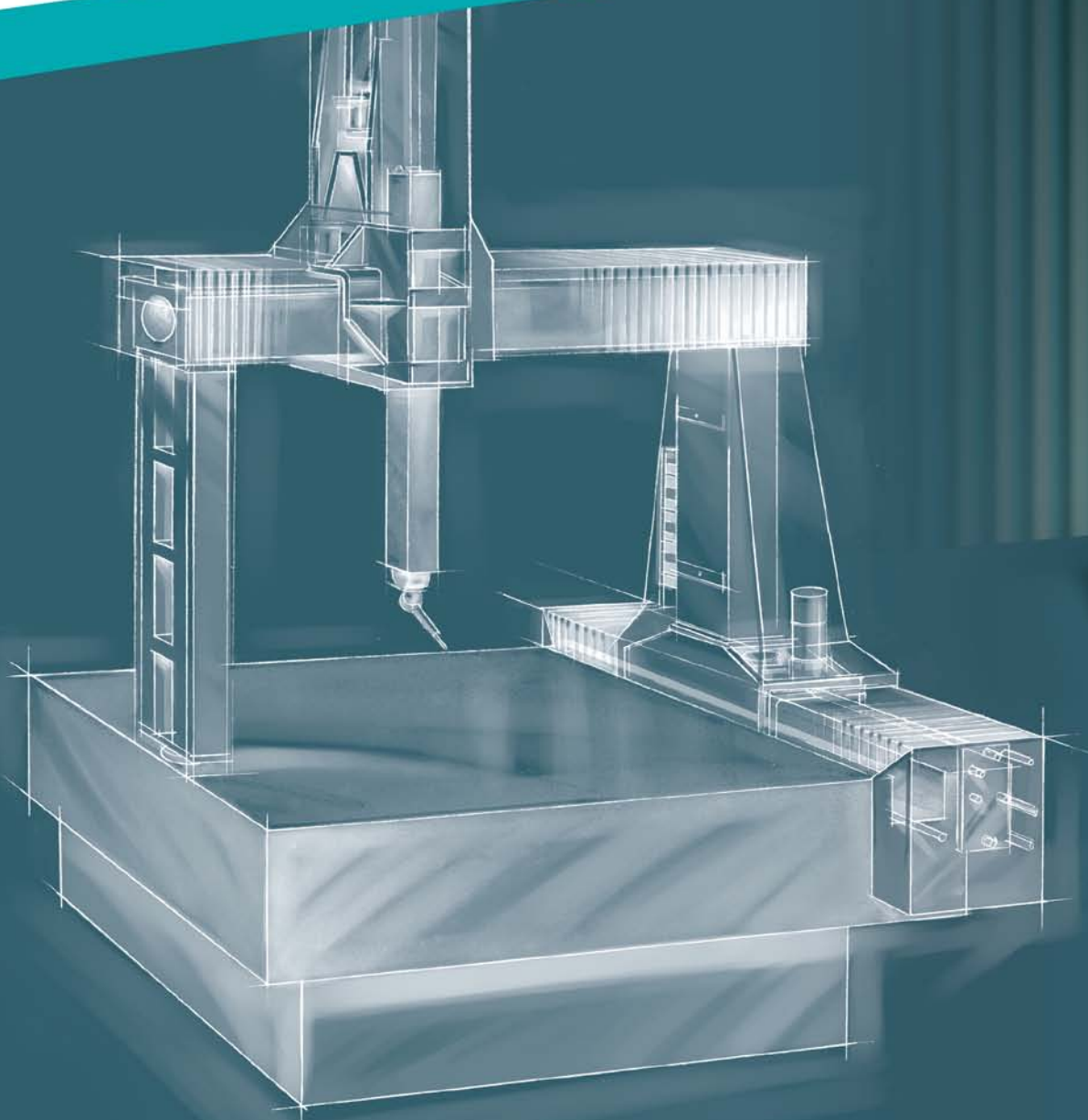
max. speed 3D - 520mm/s  
max. acceleration 3D - 1,500mm/s<sup>2</sup>

# The LH Series of CMM Machines

Widest range of CMM models available

The success of the Wenzel LH series of CMMs is no coincidence; the ongoing success is enabled by the inherent accuracy and the unconditional perfection in detail. Manufactured in Germany at the impressive Wenzel facility the success principles of this CMM range are called mechanical accuracy,

precision mechanics, and a factory build quality allowing accuracy to be achieved without the reliance on software compensation used by competitor CMMs.



LH 54

mm

X	Y	Z
500	600	400
500	1000	400

max. speed 3D - 690mm/s  
max. acceleration 3D - 2,000mm/s<sup>2</sup>

# Wenzel LH Series CMMs

Volumetric Accuracies - ISO 10360

# WENZEL®

The company of  $\mu$

Model	Renishaw TP200 Probe		Renishaw SP25/SP80 Probe	
	Standard Accuracy	Premium Accuracy	Standard Accuracy	Premium Accuracy
	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>
LH54	2.1+L/300	1.7+L/350	1.8+L/300	1.5+L/350
LH65	2.2+L/300	1.8+L/350	1.9+L/300	1.6+L/350
LH87	2.3+L/300	1.9+L/350	2.0+L/300	1.7+L/350
LH108	2.4+L/300	2.0+L/350	2.1+L/300	1.8+L/350



## LH 65

mm

X	Y	Z
650	750	500
650	1000	500
650	1200	500
650	1600	500

max. speed 3D - 690mm/s  
max. acceleration 3D - 2,000mm/s<sup>2</sup>

## LH 87

mm

X	Y	Z
800	1000	700
800	1500	700
800	2000	700
800	2500	700
800	3000	700

max. speed 3D - 690mm/s  
max. acceleration 3D - 2,000mm/s<sup>2</sup>

## LH 108

mm

X	Y	Z
1000	1200	800
1000	1600	800
1000	2000	800
1000	2500	800
1000	3000	800

max. speed 3D - 520mm/s  
max. acceleration 3D - 1,000mm/s<sup>2</sup>

# The LH Series of CMM Machines

Widest range of CMM models available

The bridge style CMMs have air bearing guideway elements in all axes which guarantee wear-free and silky smooth operation. Machines have a well proven "best in industry" track record for reliability with 99.5% up-times constantly achieved. The LH machines have circular concave air bearings with wide bearing separations. Individual air pressure controls ensure long-term

optimum performance of air bearings sets. Machines can be equipped with the full range of Renishaw TP20, TP200 and PH20 touch probes and Renishaw SP25 and SP80 scanning probes or Renishaw REVO™ high speed 5-axis scanning head.

## A scalable solution



LH 1010

mm

X	Y	Z
1000	1200	1000
1000	1600	1000
1000	2000	1000
1000	2500	1000
1000	3000	1000

max. speed 3D - 520mm/s  
max acceleration 3D - 1,000mm/s<sup>2</sup>



LH 1210

mm

X	Y	Z
1200	1600	1000
1200	2000	1000
1200	2500	1000
1200	3000	1000
1200	4000	1000

max. speed 3D - 520mm/s  
max acceleration 3D - 800mm/s<sup>2</sup>

## Wenzel LH Series CMMs

Volumetric Accuracies - ISO 10360

Model	Renishaw TP200 Probe		Renishaw SP25/SP80 Probe	
	Standard Accuracy	Premium Accuracy	Standard Accuracy	Premium Accuracy
	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>
LH 1010	2.5+L/300	2.1+L/350	2.1+L/300	1.9+L/350
LH 1210	2.9+L/300	2.6+L/350	2.6+L/300	2.3+L/350
LH 1510	3.1+L/300	2.8+L/350	2.8+L/300	2.5+L/350
LH 1512	3.2+L/300	2.9+L/350	2.9+L/300	2.6+L/350



### LH 1510

mm

X	Y	Z
1500	2000	1000
1500	2500	1000
1500	3000	1000
1500	4500	1000
1500	5000	1000

max. speed 3D - 520mm/s  
max. acceleration 3D - 800mm/s<sup>2</sup>



### LH 1512

mm

X	Y	Z
1500	2000	1200
1500	2500	1200
1500	3000	1200
1500	4000	1200
1500	5000	1200

max. speed 3D - 520mm/s  
max. acceleration 3D - 800mm/s<sup>2</sup>

All machines available up to  
Y = 5000mm

The temperature range for  
all machines is: 20°C +/- 2°C

\*measuring uncertainty  
according to DIN EN ISO  
10360 - 2, Renishaw probe  
TP200/SP25/SP80

Technical details presented  
in this document are subject  
to change without notice.

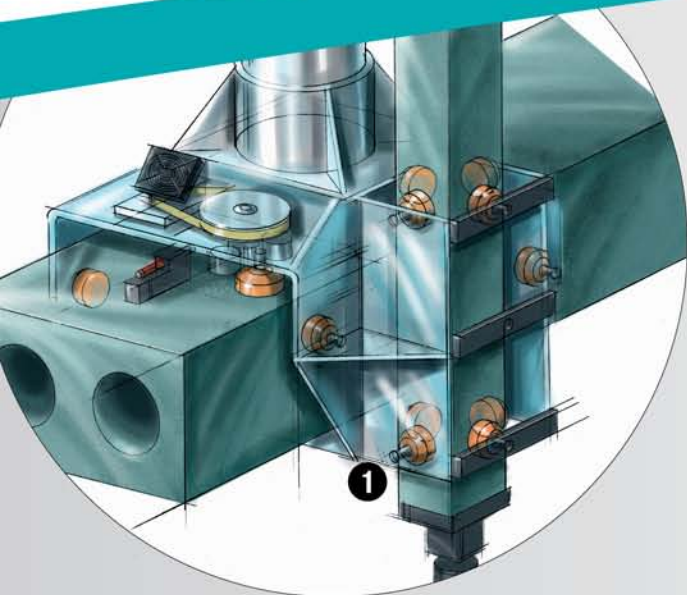
# Large stable metrology with excellent dynamics

## The LH-Gantry CMM

For large parts measuring applications, the LH-Gantry has integral granite plate and requires no foundation. It is supplied as standard with active pneumatic dampers. Air bearing guideway systems in all axes ensure wear-free operation and optimal guide characteristics in the LH Gantry.

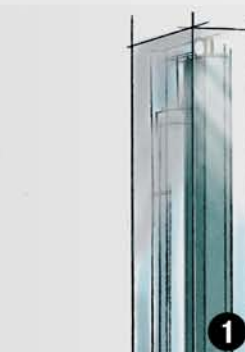
The same thermal performance in all axes is guaranteed by means from a base plate, bridge and Z ram made from black granite.

The rigid construction together with the dual drive of the Y-axis also guarantees the best possible dynamics while maintaining stability.

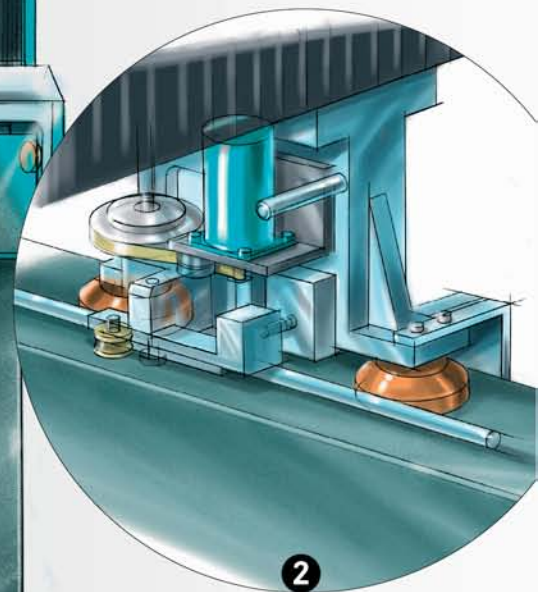
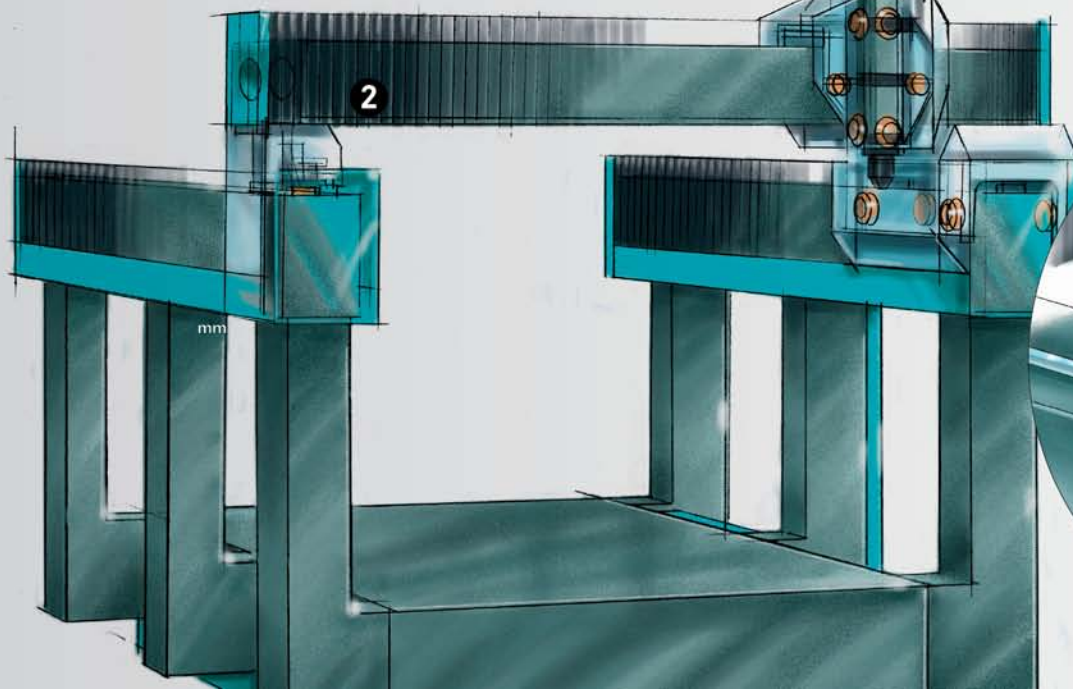


Overall symmetry

- Optimized air bearings with "wide spread"
- Perfection in the details
- Easy to service
- Thermally encapsulated



Dual drive in the Y axis  
- High level of dynamics



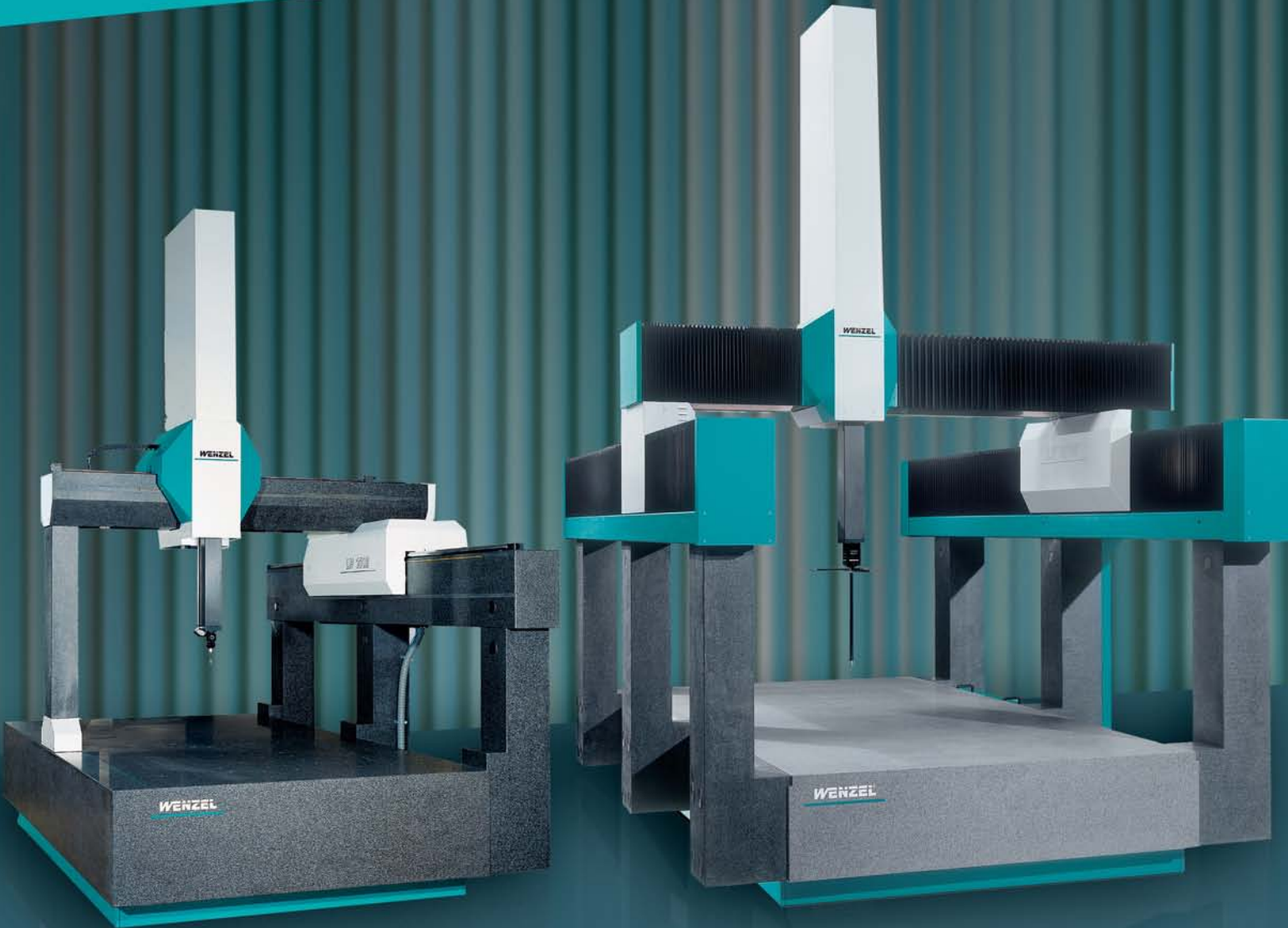
# Wenzel LH-Gantry Series CMMs

Volumetric Accuracies - ISO 10360



The company of  $\mu$

Model	Renishaw TP200 Probe		Renishaw SP25/SP80 Probe	
	Standard Accuracy	Premium Accuracy	Standard Accuracy	Premium Accuracy
	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>	MPE <sub>E</sub>
LH 1515	3.3+L/300	3.0+L/350	3.0+L/300	2.7+L/350
LH 2015	3.6+L/300	3.3+L/350	3.3+L/300	3.0+L/350



## LH 1515

mm

X	Y	Z
1500	2000/2500	1500
1500	3000/4000	1500

max. speed 3D - 520mm/s  
max. acceleration 3D - 800mm/s<sup>2</sup>

Other measuring ranges on inquiry.

## LH 2015

mm

X	Y	Z
2000	3000/4000	1500
2000	5000	1500

max. speed 3D - 520mm/s  
max. acceleration 3D - 800mm/s<sup>2</sup>

Other measuring ranges on inquiry.

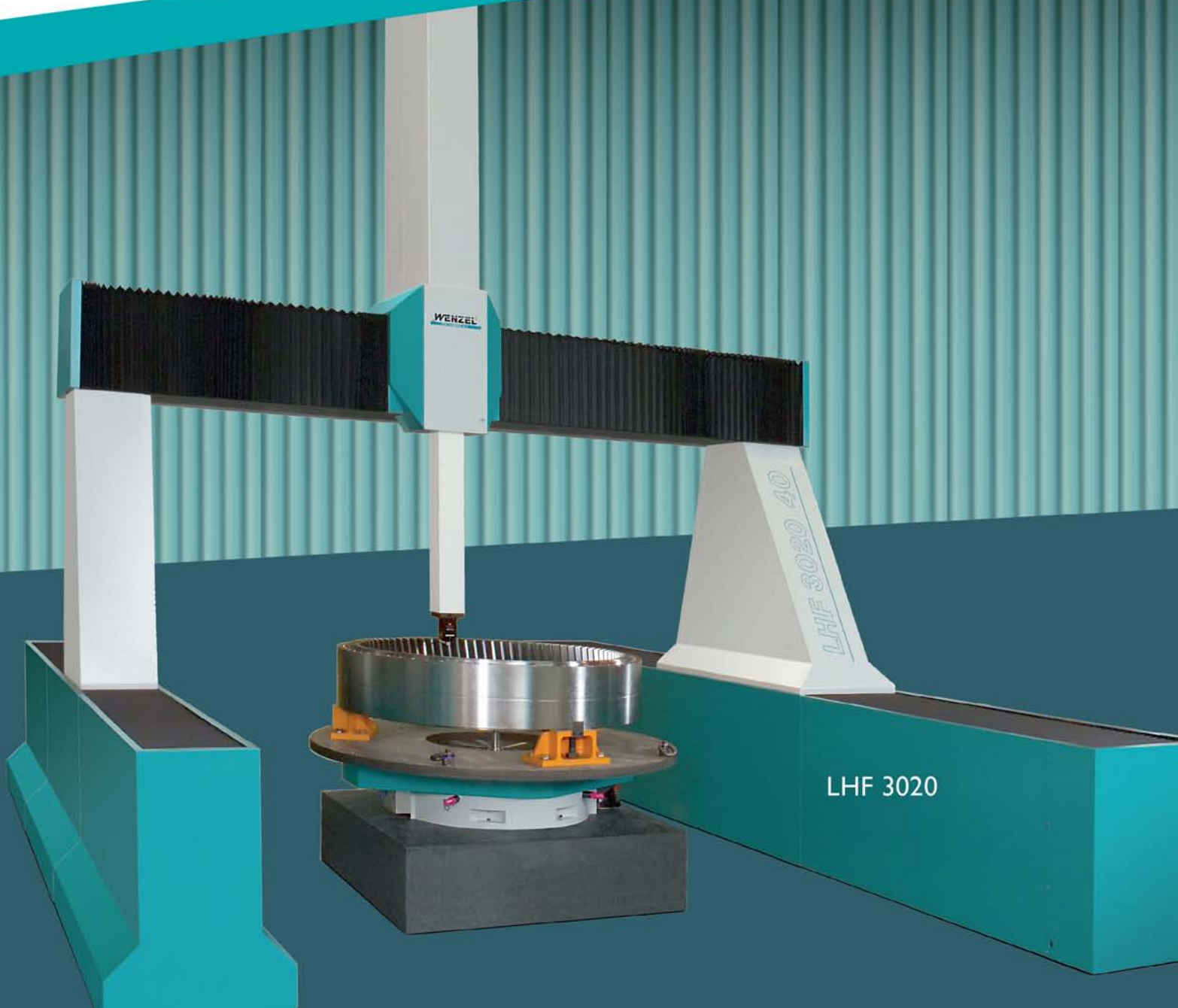
# The Wenzel LHF

Volumetric Accuracies - ISO 10360

Renishaw TP200 Probe		
	Standard Accuracy	Premium Accuracy
Model	MPE <sub>E</sub>	MPE <sub>E</sub>
LHF	6.6+L/300	5.6+L/350

guarantee wear-free operation. Like the LH model range, the LHF can also be equipped with a rotary table, allowing measurement of workpieces up to a diameter of 3.5 m. Like all the LH series, the LHF is available in a gear testing configuration.

The LHF offers even greater flexibility in respect of measuring range ergonomics. The ground-level design of the LHF enables maximum freedom of movement. The dynamics are provided by a double drive in the Y-axis, and the guides are characterized by unique stability and precision. Air-bearing guide elements



LHF 3020

# Powered by Precision Performance

# WENZEL®

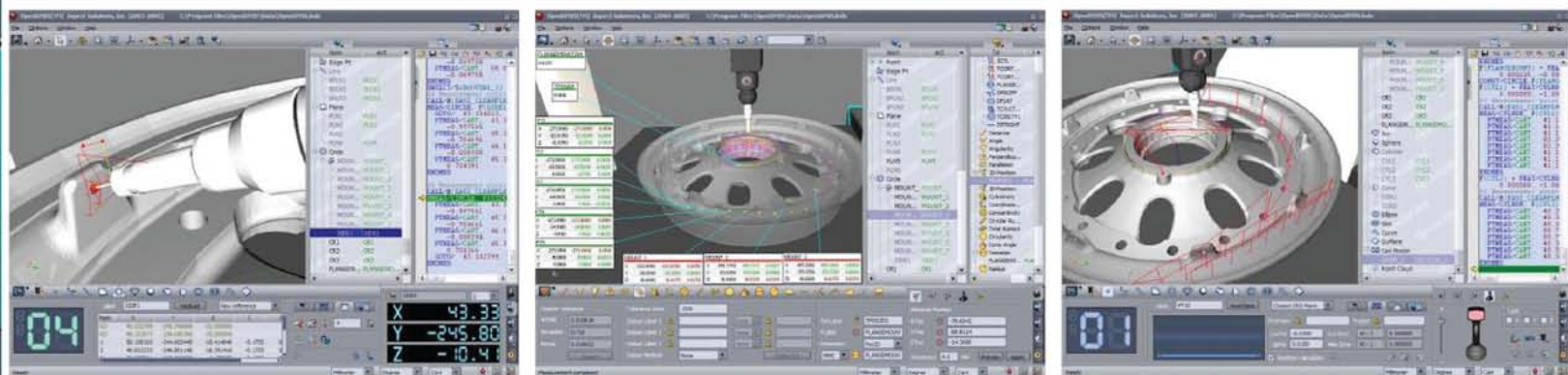
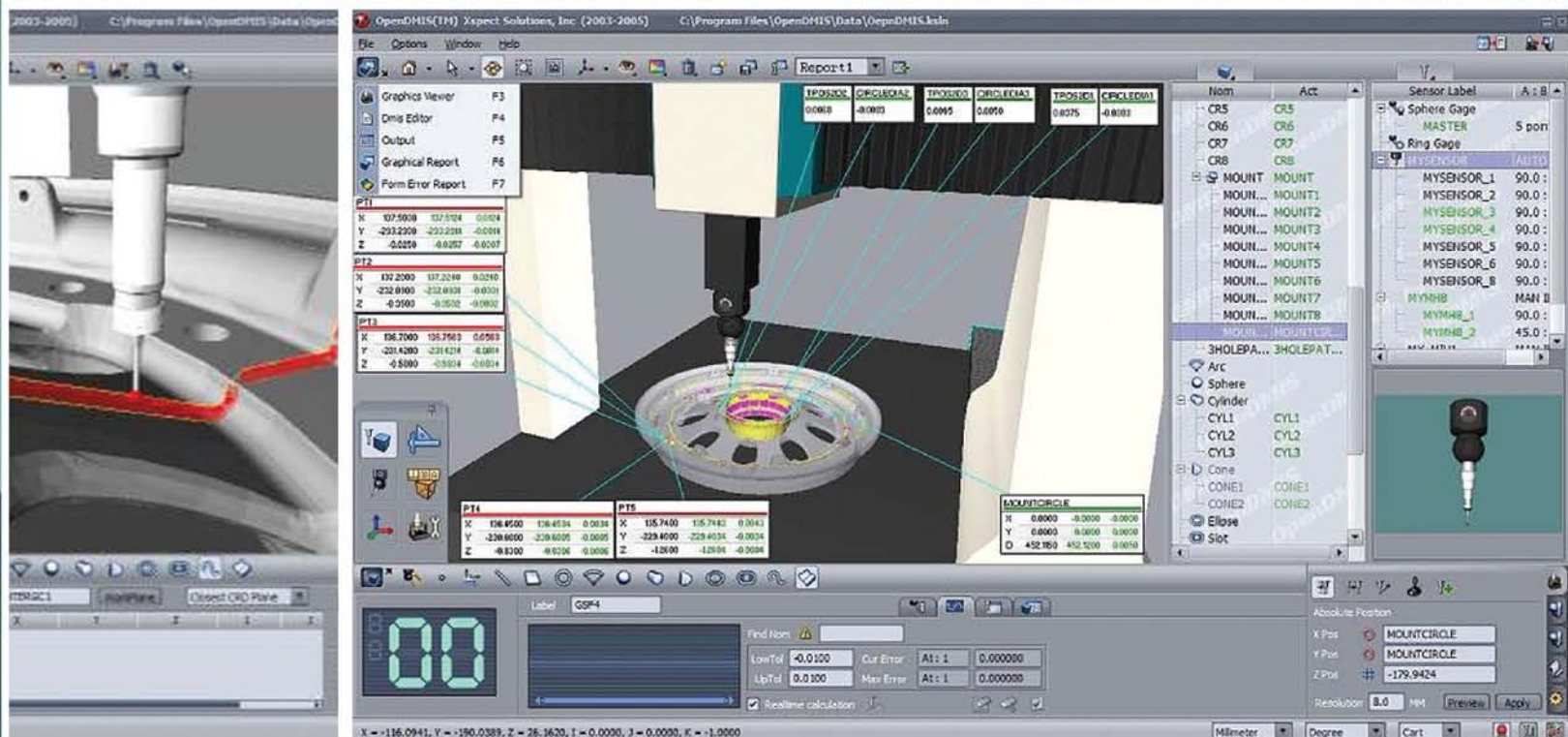
The company of  $\mu$



OpenDMIS is the next generation of DMIS CMM softwares and is characterized by its context sensitive user interface with no drill down functionality or pop-up windows. Seamless CAD integration offers single click productivity. With shortest training periods and learning curve in the industry OpenDMIS is the measure of its competitors.

OpenDMIS is factory integrated with the Wenzel 32bit WPC controller, with true continuous motion for cycle time optimization. The revolutionary Blue Tooth wireless HT400 teach pendant completes the total CMM solution with its Joymouse™, integrated Renishaw PH10 head index, 18 remote function keys and speed control.

Don't get tied to your CMM; get freedom with Standards Based Software and Wireless Operation.



# WENZEL®

The company of  $\mu$

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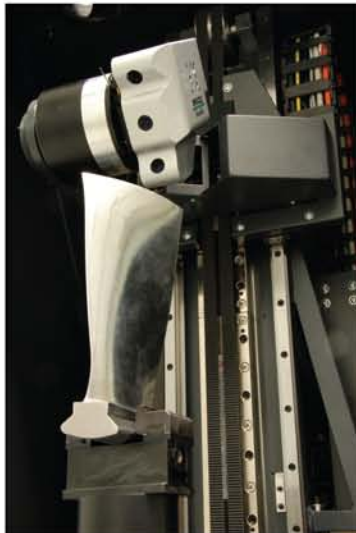
## New Products and Technology from Wenzel

### Wenzel Shapetracer

The Shapetracer 3D Line Scanner offers a high value, compact, high precision laser scanner designed to easily integrate to most coordinate measuring machines. The perfect scanning solution for tool and die design, reverse engineering and hands free product design validation.

### CoRE-DS

The CoRE-DS uses a high intensity light spot scanning technology that is unique to Wenzel. Only this scanning technology allows accurate non-contact measurement of every type of surface including highly polished and machined parts such as turbine blades and surgical implants. It is fully automatic, utilizes 5 axes of movement and is very fast.



### exaCT®

From research and development, prototype assembly and production to first article inspection the Wenzel CT exaCT® is the latest in compact precision computer tomography. Going beyond the capabilities of traditional optical coordinate measuring machines, exact volume scanning technology enables measurements to be taken inside objects rendering a non-invasive 3D image. Ideal for all sectors of engineering, research and development and manufacturing, exaCT® is suitable for measuring through most plastics, composites, light metals and wood. With the exaCT®, Wenzel sets a new standard in price-performance-ratio and makes the CT system affordable also for small and medium-sized companies.



### ScanTec MobileScan3D

The Wenzel ScanTec MobileScan3D is the world's most accurate portable laser scanner. The MobileScan 3D is uniquely able to offer the quality and repeatability of a CMM based laser scanner with exceptional portability and flexibility. In its most accurate configuration the system can achieve an accuracy of +/- 0.0005" with full 3 axis CNC control yet the system packs into 3 camera cases and can be set up anywhere in minutes.

