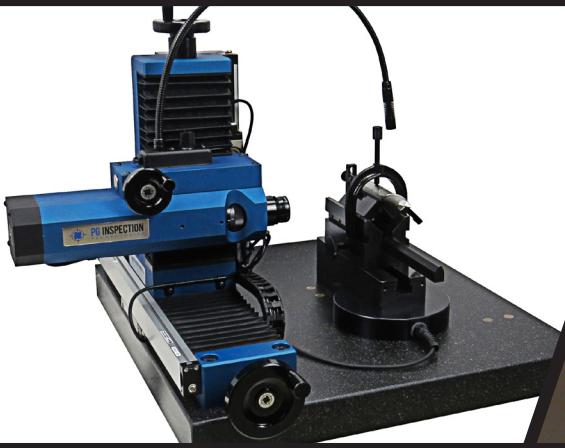
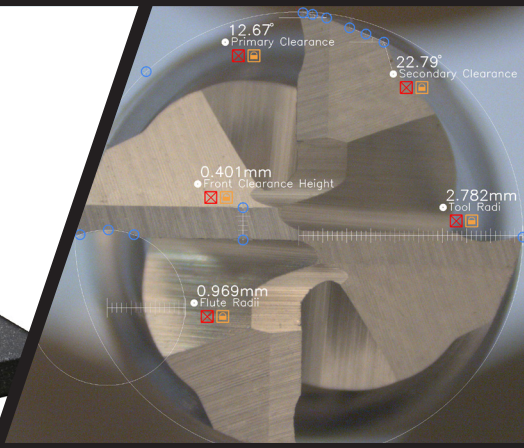
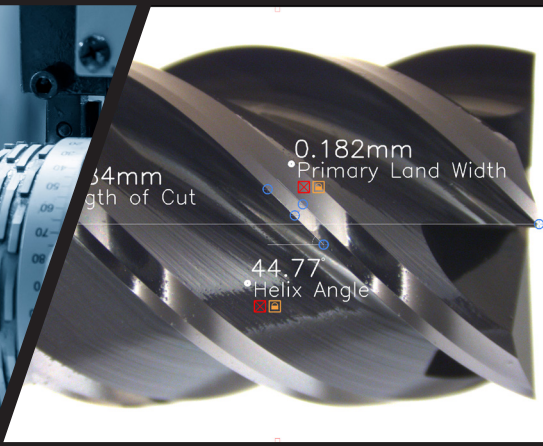
MADE IN THE USA







PG INSPECTION
TECHNOLOGIES

PG1000 CATALOG

pg@pg1000.com • 262-946-5420 • **www.pg1000.com**

PG INSPECTION TECHNOLOGIES

ACCURATE & REPEATABLE · DURABLE · EASY TO USE

Table of Contents

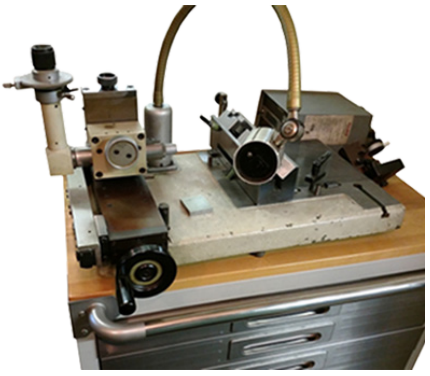
Our Story

The original PG cutting tool inspection gauge was made in Germany by Guehring Automation apprentices and resold in the US as the PG100. After the sale of Guehring Automation in 1993, former employees of Guehring Automation USA formed the company Euro-Tech Corporation. One of their first orders of business was to redesign the PG100 based on input from customers.

In 1993, Euro-Tech introduced the PG1000 and began to manufacture the new machine in the USA. The original PG1000 was a manual gauge using a Swiss-made monocular microscope and digital readout capable of measuring step lengths, diameters, relief and clearance angles, margin, and land widths. With time, more customers voiced that they would like a cutting tool inspection system that used a video camera/microscope in place of the monocular microscope. In 1997, Euro-Tech was the first to introduce a cutting tool inspection system using a 0.5MB video camera, frame grabber, and Windows 95 PC with the first generation of our proprietary software. As the digital age evolved, so did the PG1000. Today's PG1000 cutting tool inspection system uses a 5MB camera, 4K monitor, and 7x and 14x zoom modules. Our evolving software allows PG1000s to be cutting edge gauges capable of tool geometry measurements to the micron level.

As of November 20, 2019, the PG1000 cutting tool inspection system will be manufactured, sold, and serviced through a new entity named PG Inspection Technologies LLC.

Because this new company is dedicated solely to the PG1000, we will be able to better support our existing and future customers. Our commitment to our customers and partners remains our highest priority.



PG Model Comparison

Model	*Recommended* Tool Diameter	Tool Measuring Length	Magnification Range (low to high)
PG1000-400 ***Most Popular***	0.060 - 3.00" *(1.524 - 75mm)*	up to 7.5" *(190mm)*	12.5 - 145x
PG1000-400-1.0X ***Small Tools***	0.025 - 0.40" *(0.635 - 10mm)*	up to 7.5" *(190mm)*	25 - 290x
PG1000-400-1.3X ***Micro Tools***	0.015 – 0.30" *(0.381 – 7.5mm)*	up to 7.5" *(190mm)*	35 - 415x
PG1000-400LT ***Large Tools***	0.075 - 5.00" *(1.91 - 125mm)*	up to 13.4" *(340mm)*	8 - 100x
PG1000-200 ***Basic/Economical***	0.075 - 1.00" *(1.91 - 25mm)*	up to 7.5" *(190mm)*	15 - 95x

The PG1000-400 and PG1000-200 are tool geometry inspection systems durable enough for everyday shop floor use and precise enough for a metrology laboratory's incoming and outgoing quality inspections. Both units utilize a 5MP camera which reproduces and displays high resolution cutting tool images on a 4K monitor.

All PG1000-400 systems collect and display data from the horizontal (X), vertical (Y), base block/tool holder rotation (A), cross-hair rotation (Z), magnification (M) and focus (F) Axis's.

The PG1000-200 system collects and displays data only from the horizontal (X), vertical (Y) and cross-hair rotation (Z) Axis's.

The data collected and displayed by these three additional data encoders (A, M and F Axis's) on the PG1000-400 decreases the amount of information that needs to be manually entered into the software by the user. These extra encoders also increase the probability of accurate and repeatable inspection results and limit the possibility of human error. The additional encoders allow the user to recall and establish identical inspection scenes and utilize the REACTION software to its full potential.

PG Model Comparison

REACTION Software Collects and Displays the Below Data					
X Axis Horizontal *(in or mm)*	**Y Axis** Vertical *(in or mm)*	**A Axis** Tool Rotational Position *(degrees)*	**Z Axis** Cross-hair Rotation *(degrees)*	**F Axis** Focus Position	**M Axis** Microscope Magnification
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	No	Yes	No	No

TYPES OF CUTTING TOOLS

- Step drills
- Drills
- Reamers
- End mills
- Inserts
- Taps
- Micro tools
- Custom tooling
- Screws/bolts

TYPES OF MEASUREMENTS

- 50+ Preset Calculations/Measurements
- Distances
- Radii
- Angles
- Diameter
- Comparisons

APPLICATIONS

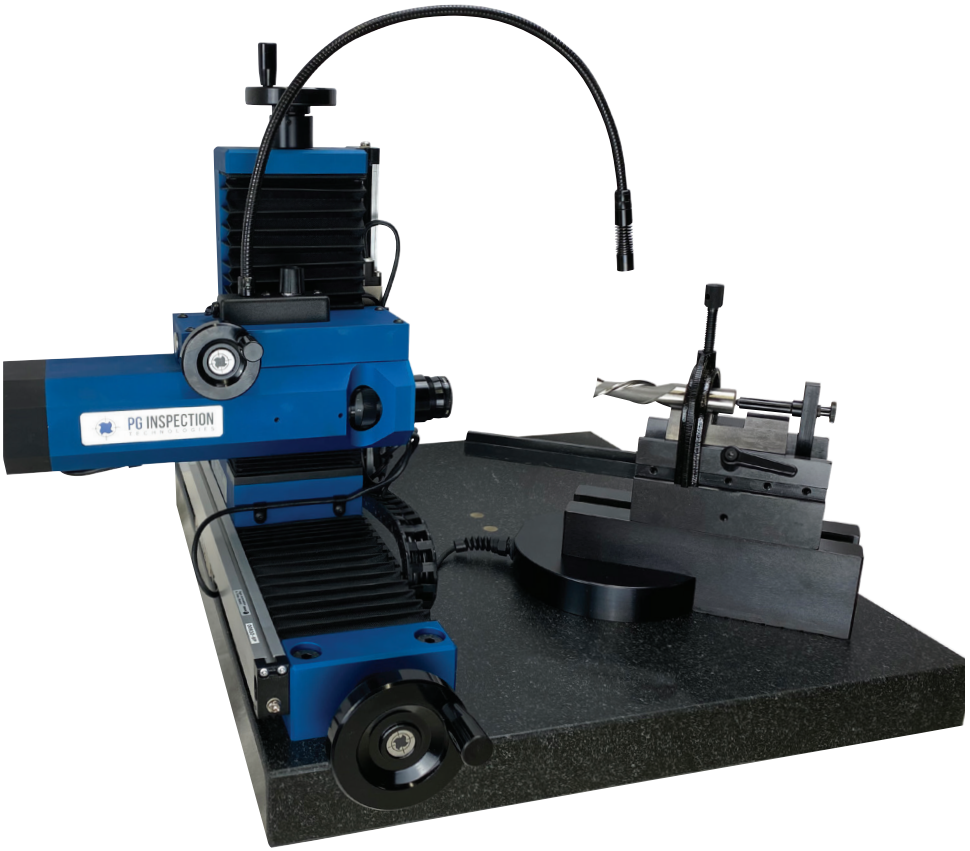
- Quick checks on the shop floor – next to CNC grinding machines
- Advanced geometry and visual inspections in the metrology laboratory
- Creating reports for incoming/outgoing quality control
- Scenes and Inspections software feature for testing large quantity tool runs
  - Create inspection macro to control testing process ensuring accurate & repeatable tests

PG1000-400 Overview

Optical Cutting Tool Inspection System with REACTION Software For tools up to 3.00” (75mm) in diameter

The PG1000-400 is a tool geometry inspection system durable enough for everyday shop floor use and precise enough for a metrology laboratories incoming and outgoing quality inspections. The 5MP camera reproduces and displays high resolution cutting tool images magnified up to 145x on a 4K monitor.

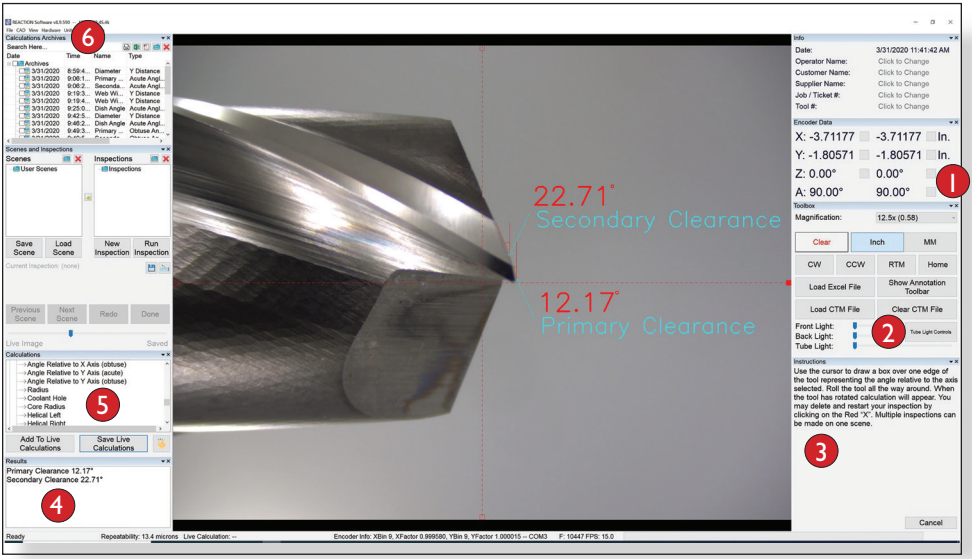
All PG1000-400 systems collect and display data from the horizontal (X), vertical (Y), base block/tool holder rotational position (A), crosshair rotation (Z), focus (F) and microscope magnification (M) axis's as well as allow for optional lighting control through the software.



PG1000-400 Features

- Quick - measurements taken in less than 30 seconds
- Extremely accurate and repeatable
- User friendly software interface
- Flexibility during inspection – inspections done your way
- Live image calculations
- No pixel manipulation
- Edge detection
- 50+ calculations/measurements available in software
- Perform multiple calculations over a single image
- Create inspection macro templates
- DXF/DWG overlay software lockable to scale movement
- DXF/DWG data collection
- Tool comparisons
- Customizable PDF inspection reports
- Magnifications automatically synchronized to PC
- Focus indication
- Certified granite base
- High precision linear bearings for all axis
- 270° pivoting base block for tool holding fixtures
- Free software upgrades (as hardware permits)
- All units delivered fully calibrated and ready for use
- 1 year warranty
- MADE IN USA

.625" 2 Flute End Mill



Primary and Secondary Clearance Angle at 12.5X zoom

1. Data from all encoder/ axis displayed
2. Light controls
3. On screen instructions
4. Calculation results
5. Calculations available
6. Saved calculations for PDF reporting

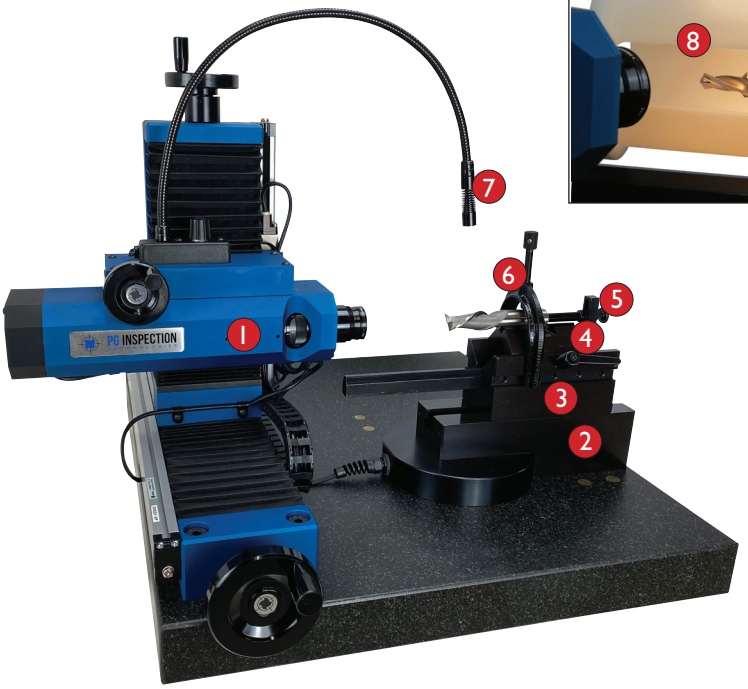
PG1000-400 Specifications

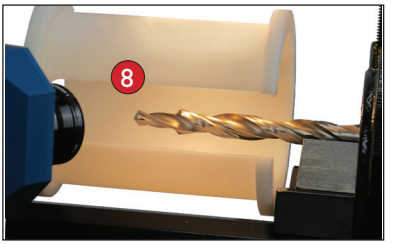
Scope Magnification:				Recommended Tool Size:	Camera:	Computer:
PG1000-400						
12.5x	50x	90x	130x	0.060 - 3.00" (1.524 - 75mm) flute up to 7.5"L	5MP color camera	High performance w/ REACTION software reinstalled
20x	60x	110x	**145x**			
30x	70x	120x				
40x	80x	125x				
PG1000-400-1.0X						
25x	100x	180x	260x	0.025 - 0.40" (0.635 - 10mm) flute up to 7.5"L	5MP color camera	High performance w/ REACTION software reinstalled
40x	120x	220x	**290x**			
50x	140x	240x				
80x	160x	250x				
PG1000-400-1.3X						
35x	150x	276x	390x	0.015 - 0.30" (0.381 - 7.5mm) flute up to 7.5"L	5MP color camera	High performance w/ REACTION software reinstalled
60x	186x	308x	**415x**			
85x	213x	340x				
121x	245x	368x				
PG1000-400LT						
8x	36x	65x	93x	0.075 - 5.00" (1.91 - 125mm) flute up to 13.4"L	5MP color camera	High performance w/ REACTION software reinstalled
14x	43x	72x	**100x**			
20x	50x	80x				
30x	58x	86x				

Scales:	Power:	Language:	
Fagor 1µ	110Vac 60Hz (220Vac optional)	English Spanish Chinese	German Japanese

Accuracy/ Repeatability:	Measuring Range:	Dimensions: Weight:
+/-0.0002" (5µ) at maximum magnification	Vertical: 3.35" (85mm) Horizontal: 7.87" (200mm)	24"x19"x18" 140lbs

PG1000-400 System Includes





1. PG1000-400 gage
2. Pivoting base block for tool holding fixtures
3. V block, 5" (127mm)
4. V block insert with notch, 3.15" (80mm)
5. Carbide tipped backstop assembly
6. Top/tool clamp
7. Variable intensity LED work light
8. Light diffuser tube
9. High performance PC
10. REACTION software
11. 27" 4K Ultra HD monitor

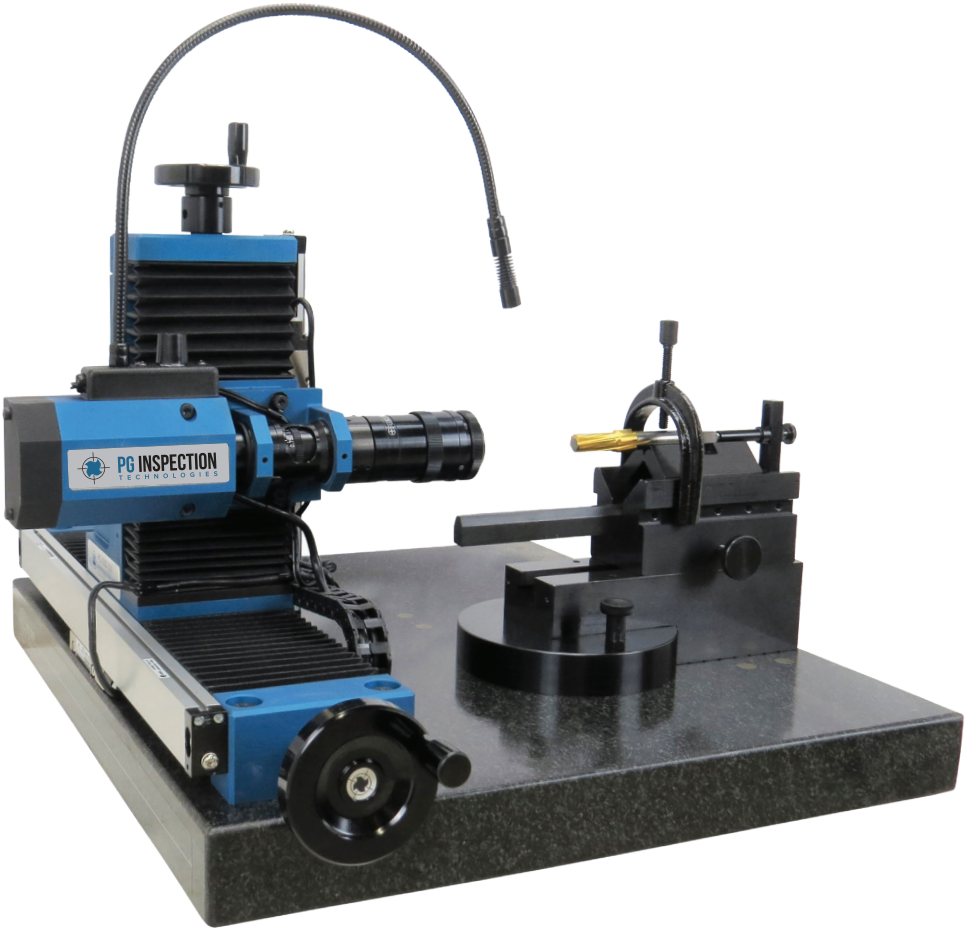
PG1000-200 Overview

Basic Cutting Tool Inspection System with REACTION Software

For tools up to 1.00” (25mm) in diameter

The PG1000-200 is a tool geometry inspection system durable enough for everyday shop floor use and precise enough for a metrology laboratory’s incoming and outgoing quality inspections. The 5MP camera reproduces and displays high resolution cutting tool images magnified up to 95x on a 4K monitor.

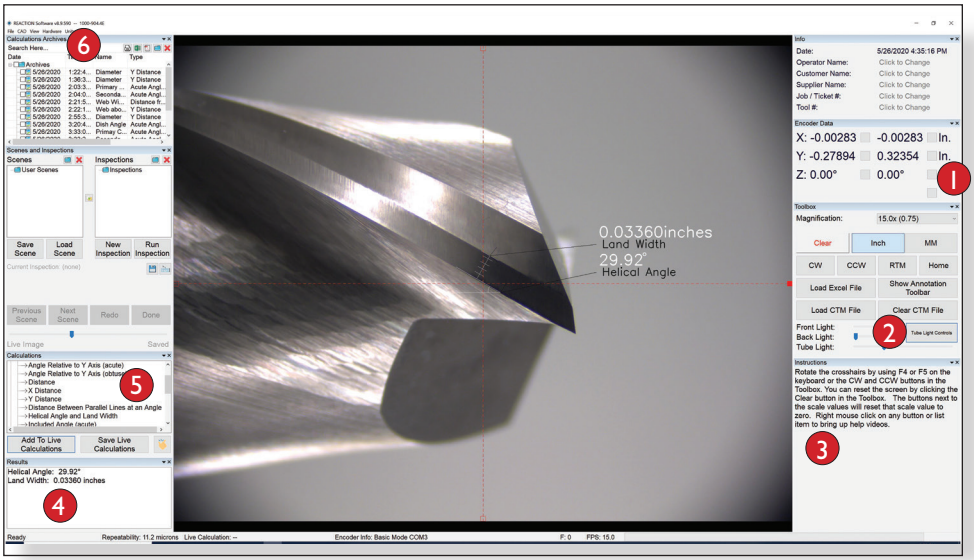
The PG1000-200 systems collect and display data from the horizontal (X), vertical (Y), and crosshair rotation (Z) axis’s as well as allow for optional lighting control through the software.



PG1000-200 Features

- Quick - measurements taken in less than 30 seconds
- Extremely accurate and repeatable
- User friendly software interface
- Flexibility during inspection – inspections done your way
- Live image calculations
- No pixel manipulation
- Edge detection
- 50+ calculations/measurements available in software
- Perform multiple calculations over a single image
- Create inspection macro templates
- DXF/DWG overlay software lockable to scale movement
- DXF/DWG data collection
- Tool comparisons
- Customizable PDF inspection reports
- 270° pivoting base block for tool holding fixtures
- Protractor decal for tool position
- Manual index plunger with 3 fixed locations
- Certified granite base
- High precision linear bearings for X & Y axis
- Free software upgrades (as hardware permits)
- All units delivered fully calibrated and ready for use
- 1 year warranty
- MADE IN USA

.560” 2 Flute End Mill



Helical Angle and Land Width at 15X zoom

1. Data from all encoder/ axis displayed
2. Light controls
3. On screen instructions
4. Calculation results
5. Calculations available
6. Saved calculations for PDF reporting

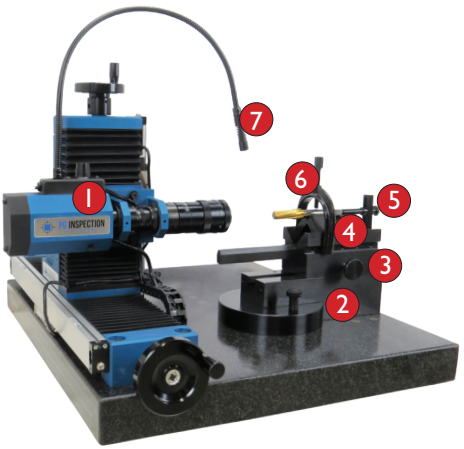
PG1000-200 Specifications

Scope Magnification:	Recommended Tool Size:	Camera:	Computer:
15x 30x 55x 95x 20x 40x 75x	0.060 - 3.00" (1.524 - 75mm) flute up to 7.5"L	5MP color camera	High performance w/ REACTION software reinstalled

Scales:	Power:	Language:	
Fagor 1µ	110Vac 60Hz (220Vac optional)	English Spanish Chinese	German Japanese

Accuracy/ Repeatability:	Measuring Range:	Dimensions: Weight:
+/-0.0002" (5µ) at maximum magnification	Vertical: 2.75" (70mm) Horizontal: 7.87" (200mm)	24"x19"x18" 140lbs

PG1000-200 System Includes



1. PG1000-200 gage
2. Pivoting base block for tool holding fixtures
3. V block, 5" (127mm)
4. V block insert with notch, 3.15" (80mm)
5. Carbide tipped backstop assembly
6. Top/tool clamp
7. Variable intensity LED work light
8. Magnetic white diffuser tube
9. High performance PC
10. REACTION software
11. 27" 4K Ultra HD monitor

Software Designed for Cutting Tool Inspection

The PG1000 REACTION software was developed by PG Inspection Technologies for the exclusive purpose of cutting tool inspection. The word **REACTION** is an acronym for **REA**ltime **C**utting **T**ool **I**nspect**ION.**

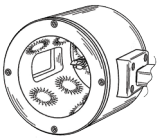
Our software digitally analyzes five million pixels, sorting over sixteen million colors at a rate of fifteen times per second to find patterns and shapes, overlooking the excessive glare from too much direct light, shadows, irregular or broken shapes.

REACTION software does not electronically enhance, crop, or magnify tool images in any way. What you see is exactly what the camera captures.

Easy to Use Inspection Software

Our goal is to help enhance your cutting tool inspection. That's why the PG software development team listened to you. In fact, our software incorporates a significant amount of feedback received from customers over the years. The end result is a robust, made-in-the-USA system that is easy to understand and highly adaptable to user preferences.

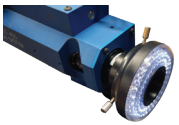
We also provide a complete series of training videos to accelerate your understanding of our software. See Resources page at www.pg1000.com.



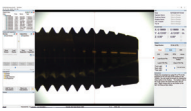
Illumination Tube
p/n 1000-648

The eight quadrant LED illumination tube supplies a controllable light environment for precise tool inspections. The light intensity for each quadrant is controlled individually through the REACTION software.

Ring Light
p/n 1000-661-1 (PG1000-400)
p/n 1000-661-2 (PG1000-200)

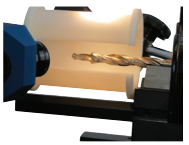


The LED ring light provides shadow free illumination. The light intensity is easy to control through the REACTION software.



Backlight
p/n 1000-662

The 6" x 6" LED backlight panel is an ideal lighting accessory for capturing a profile image. The light intensity is controlled through the REACTION software.



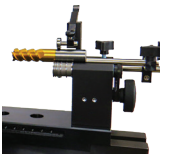
Light Diffuser Tube
p/n 1000-515

The light diffuser tube is included with the PG1000-400 and can be used with the LED spotlight to help reduce hotspots on the tool.

Light Diffuser Plate
p/n 00495-00

Besides diffusing light and reducing hot spots, the diffuser plate can also be used as a clean white background when capturing images.

Concentricity Fixtures
The PG concentricity fixture, also known as a 3 roller, provides a constant smooth part rotation that allows for easy and accurate measurements of the tool. All precision concentricity fixture are certified to be accurate within 2µ over the rollers.



p/n 1000-570
Most popular.

Concentricity fixture with custom grooved precision rollers, top roller and back-stop. Shank/tool size range: 0.125" - 1.25"

p/n 1000-571

Concentricity fixture with quarter 'zero-style' plain precision rollers, top roller and backstop for small/micro tools. Shank/tool size range: 0.010" - 1.000"

p/n 1000-572

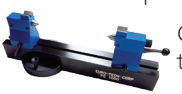
Concentricity fixture with precision rollers, top roller and backstop for large tools. Shank/tool size range: 0.375" - 2.0"

p/n 1000-573

Concentricity fixture with quarter plain precision rollers, top roller and back-stop. Shank/tool size range: 0.125" - 1.25"

Center Fixtures
The PG center fixtures include hardened and precision ground male centers to minimize runout between centers.

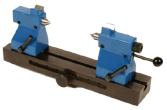
p/n 1000-500-1 (PG1000-200)



Center fixture assembly for tools up to 12" long.

p/n 1000-500-2 (PG1000-400)

Center fixture assembly for tools up to 12" long. Includes A Axis rotation encoder for tracking tool position in degrees via the REACTION software.



p/n 1000-501

Mini center fixture assembly for tools up to 6" long.

Gun Drill Fixture

p/n 1000-650

The PG gun drill fixture can accommodate gun drill lengths up to 24".

V Blocks

A 5" V block is supplied with all PG1000-200 and PG1000-400 models however longer V blocks are available for special applications.

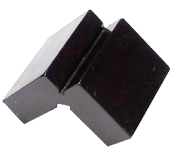
V Block Inserts

p/n 00030-1MA

V block insert with notch, 3.15" (80mm). Included with all PG1000-200 & 400 models.

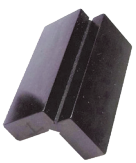
p/n 00030-2MA

Matched set of (2) notched 00030-1MA V block inserts for inspecting longer tools, 3.15" (80 mm).



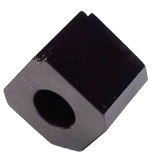
p/n 00030-3MA

Short V block insert for small/ short tools, 1.5" (38mm).



p/n 00030-4MA

V block insert without notch, 3.15" (80 mm).



p/n 00257-1MB

Mini V block insert for micro tools (1 - 3mm shank).

Calibration Reticles

The PG1000 systems can be calibrated with either a standard or linear calibration reticle. Both reticles calibrate the system at each zoom magnification.

The standard 1000-443 reticle will also calibrate the scales on the X-axis (horizontal) and Y-axis (vertical) over a 50x50mm area. This reticle works well for applications that require a relatively small designated measuring area.

When a larger measuring area is routinely used, it is important to calibrate at more points along the X- and Y-axes. The larger 1000-645 linear calibration reticles calibrate the scales over the entire measuring range.

p/n 1000-443

Standard calibration reticle supplied in mounting bracket and foam-lined Pelican brand case. Includes secondary NIST certification valid for a minimum of 4 year from date of shipment.

p/n 1000-645-1

Linear segmented calibration reticle supplied in mounting bracket and foam-lined Pelican brand case. Includes secondary NIST certification valid for a minimum of 9 years from date of shipment.

p/n 1000-645-2 (PG1000-400LT only)

Linear segmented calibration reticle supplied in mounting bracket and foam-lined Pelican brand case. Includes secondary NIST certification valid for a minimum of 9 years from date of shipment.

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TECHNOLOGIES
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