



**MICROGRAPH**  
TECHNOLOGIES

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# WELD PENETRATION INSPECTION SYSTEM



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# Weld Penetration Inspection System

## Key Features:

- ▶ Supports comprehensive weld measurement parameters including depth/penetration, leg length, throat thickness, root penetration, weld angle, percentage penetration, and all standard 2D measurements.
- ▶ Enables calculation of midpoints, construction of perpendiculars, and measurement of angles between lines.
- ▶ Allows creation of fully customizable user-defined parameters.
- ▶ Provides user-defined templates for various component types, including specified parameters, expected values, and tolerance limits.
- ▶ Facilitates definition of customized rules and criteria for PASS/FAIL evaluation.
- ▶ Offers capability to generate master templates for measurement setups specific to each component type.
- ▶ Allows setting of specifications and tolerances at both individual parameter level and master template level.
- ▶ Supports detailed component-level reporting.
- ▶ Displays date and time directly on the captured image.
- ▶ Annotates images with measurement results and parameter names.
- ▶ Enables addition of user comments on images.
- ▶ Generates reports in both Excel and PDF formats.

## A) Stereo Zoom Microscope:

### Model: pixel-ZM

- Optical System:**
- A) Objective - 0.65X to 60X
  - B) Eyepiece - 10X (pair).
  - C) Graduated Scale Eyepiece 10X.
  - D) Parallel zoom optical system

- Optical Control:**
- A) Fixed nose piece
  - B) Zooming Ratio 6.4: 1
  - C) Rack and Pinion focusing stroke 50mm.

### Model: MGT65



- Magnification:** 6X to 60X.
- Field of view:** 28.6-4.4mm
- Viewing Head:**
- Trinocular Head can be rotated a full 360 degree and lock in any position.
  - Desired, having a facility of dioptic and interpupillary distance adjustment.
  - Mounted on pole type base.
- Stage (Base):**
- Main transformer is built in base with a selector switch which allows them to be used separately or simultaneously.
  - Stage plate of transparent glass is provided as standard.
- Dual illumination:**
- Transmitted of 6 Volt 20 Watts Halogen Bulb
  - Oblique incident white light illumination.
  - 56-LED ring light providing shadow free illumination

## **B] Software: Weld Analyzer and 2D Measurement Software: Model: pixel-WPMS 10.5**

- Weld Parameters Analysis**
- Leg length, throat, penetration, root penetration, metal thickness etc.
  - Area and depth of Heat Affected Zone (HAZ)
  - Joining Angle measurement
  - Color selection for independent measurements
  - Option for printing the readings on image
  - Tolerance limit facility with GO/No GO indications for observed readings

- Porosity and Other Defect Analysis:**
- Geometrical parameters such as length, width, area, perimeter estimation of porosity
  - Crack length and width
  - Maximum Lack of fusion penetration depth
  - Tolerance limit facility with GO/No GO indications for observed readings

- Two-Dimensional Measurement Feature:**
- Object counting
  - Distance between any two points
  - Angle between two edges
  - Rectangle measurement
  - Irregular Area measurement
  - Length, width, Angle, Arc Measurements

**Customized report generation in Excel, Word, PDF as per end user formats etc.  
Report will have the measurement data as well as the image with drawings.**

**Component level summary report, with images & measurements of each weld spots**

## **C] Digital Color Camera (5 MP, Imported):**

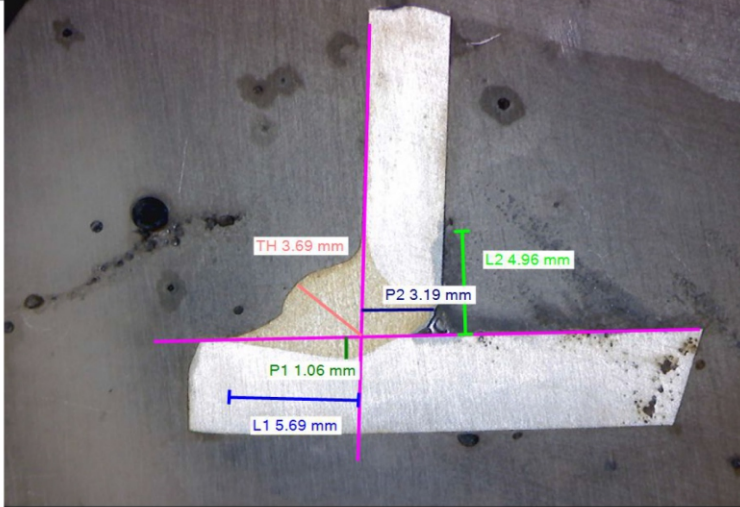
- Technical Specification:**
- Image Sensor: 1 / 2.5" type CMOS
  - Effective picture elements: 2592 x 1944 (H x V)
  - Maximum Frame Rate: 5.8 at high resolution
  - Pixel Size: 2.2 X 2.2

## TEST REPORT

Customer Name & Address

Test Report No.  
Inward No.  
Sample Description  
Material Specification  
Size of the material  
Date of reporting

Sample Received Date  
Job/Sample ID Mark



### Statement of Conformity

Sr.No.	Characteristic	Specification(mm)	Observation(mm)	Remark
1	Leg 1	L1	5--6	5.69 Pass
2	Leg 2	L2	4 -- 6	4.96 Pass
3	Plate 1 Thikness	PT1	5	5
4	Plate 2 Thikness	PT2	5	5
5	Penetration 1	P1	2--3	1.06 Fail
6	Penetration 2	P2	2--4	3.19 Pass
7	% Penetration 1	%P1	60--70 %	21.2 Fail
8	% Penetration 2	%P2	60--70 %	63.8 Pass
9	Throat Height	TH	3 to 5	3.69 Pass

Tested By

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Note :



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