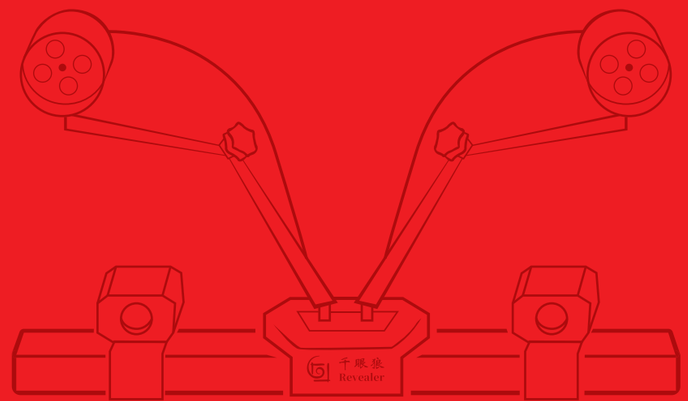
DEDICATED TO THE INNOVATION OF HIGH-SPEED
VISION PERCEPTION AND MEASUREMENT

DIC Strain Measurement System

Product Catalogue

2025~2026



HF Agile Device Co., Ltd

ADDR: Fuhuang New Version Mansion,Hefei,China

www.revealerhighspeed.com

千眼狼
Revealer

Company Profile

HF Agile Device Co., Ltd is a scientific instrument company specializing in the innovation of high-speed visual perception and measurement technology.

The company's photoelectric measuring instruments and measuring systems developed based on independent innovative core technologies have accumulated rich application practices in transient process analysis, strain field measurement, flow field measurement, motion trajectory measurement, target tracking and identification, product performance test, real-time fault analysis, online quality inspection and other scenarios, which are widely used in scientific research, aerospace, industrial intellectual property, biomedical and other fields.

Milestones

2006
Technology incubation at USTC

2011
Released the first domestic high speed camera

2017
Released the first domestic 10000fps high speed camera

2019
Undertake national key projects
Released target tracking and measurement system
Released DIC strain measurement system

2021
Undertake three major national projects

2022
High speed camera MS TOP1
DIC MS TOP3

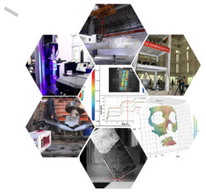
2023
Released sCMOS cameras

2024
Released 1.3M @25000fps high speedcamera
Released SIM

Product Contents

3D high speed DIC

P05



Typical cases

P15

3D quasi static DIC

P07

DIC Strain & Deformation Measurement System

DIC EDU

P13

Video extensometer

P11

3D infrared DIC

P09

System Brief

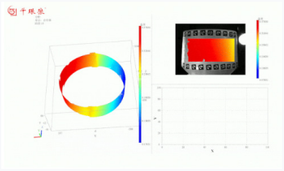
DIC strain measurement system

Based on non-contact optical measurement method, DIC strain measurement system measures the spatial three-dimensional coordinates of the object, displacement and strain data under load.
Revealer DIC is created by Qingchuan Zhang’ s team at University of Science and Technology of China.

System Components

DIC strain measurement system software

Software is being developed to cover mechanical analysis, modal, crack, multi-field coupling analysis and other modules.



Universal measuring device

Integration of synchronous trigger
Dual LED lights
Supports multiple measurement fields

Image acquisition device

Compatible with all Revealer high speed cameras
Compatible with mainstream HD resolution cameras

Graphics workstations

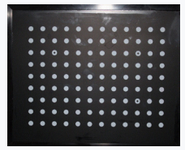
Industrial Grade Graphics Processing
Professional graphics display
Desktop and portable optional

Trigger collector

Analog/digital signal I/O ports

Calibration plate

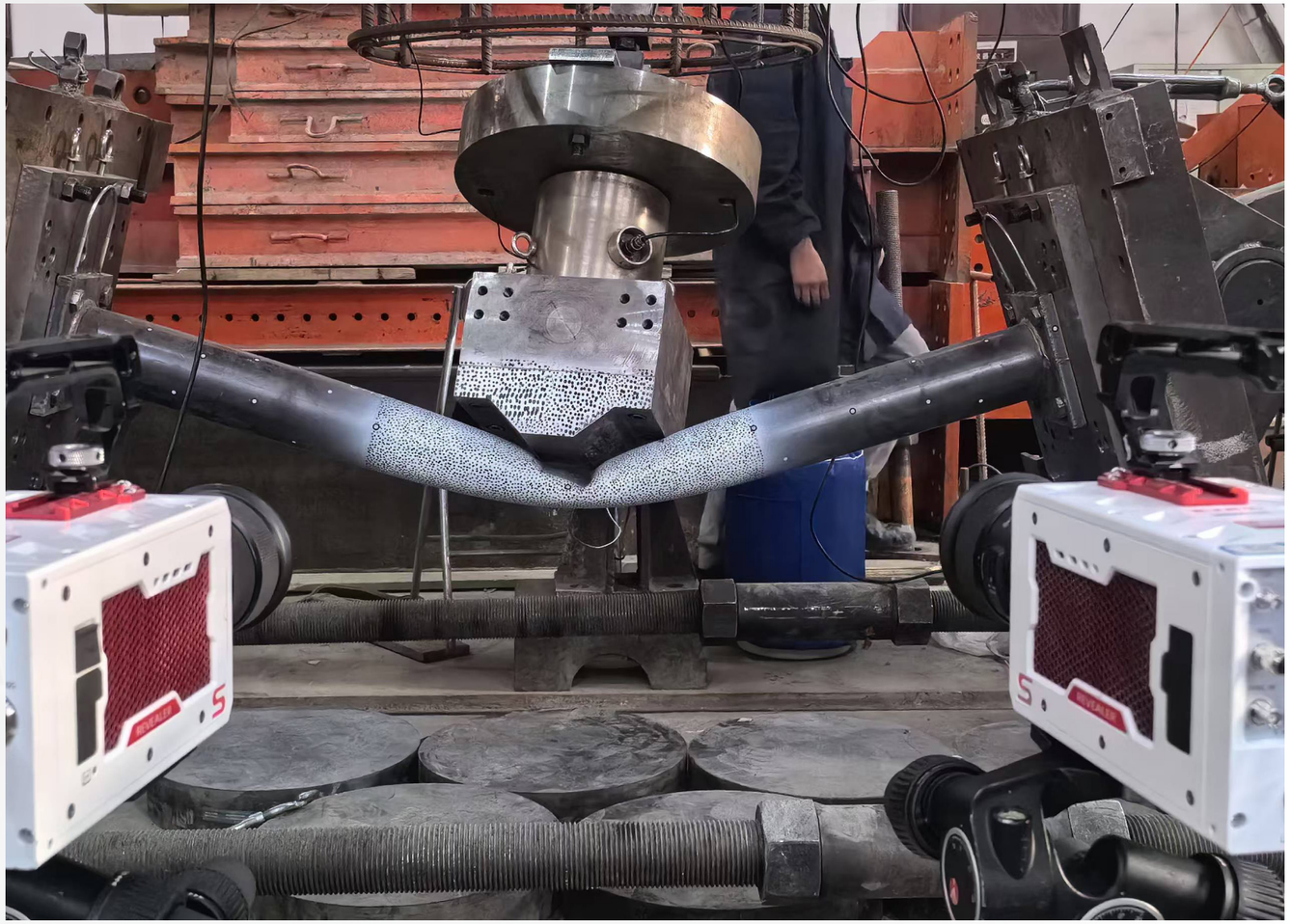
Ceramic Dot Calibration Plate 3/4/6/9/12mm
Honeycomb Aluminum Calibration plate
Infrared calibration plates



Product Brief

RDIC-HS

RDIC-HS consists of two high speed cameras, synchronized triggers, measurement software, calibration plates, and graphic workstations, and supports instantaneous measurement of spatial 3D coordinates of objects, displacement gauges under extreme loads, and strain data.



Key Features

- 16000fps high speed non-contact measurement
- Software ease to use
- Customizable development
- Full-field 3D deformation, displacement and strain measurement
- Displacement accuracy 0.01pixel, strain accuracy 50με
- Vibration Modal Analysis, Crack Analysis and others
- Full-field three-dimensional coordinates, strain, displacement, velocity, acceleration, mechanical properties

Product Parameters

SKUs	RDIC-HS-S	RDIC-HS-G_Pro	RDIC-HS-M
No. of cameras	2	2	2
Resolution	1280×800	5120×4096	1920×1080
Full frame rate	16000fps	1000fps	3000/2000/1000fps
Measuring Field of View	50~500mm	10~1000mm	50~500mm
Displacement accuracy	≤ 0.01pixel	≤ 0.01pixel	≤ 0.01pixel
Strain accuracy	≤ 100με	≤ 50με	≤ 100με
Strain Measurement Range	0.005%~2000%	0.005%~2000%	0.005%~2000%

Product Brief

RDIC-STD

RDIC-STD consists of two high resolution cameras, synchronized triggers, measurement software, calibration plates, and graphic workstations, and supports measurement of spatial 3D coordinates of objects, displacement gauges under loads, and strain data.

Key Features

- High resolution non-contact measurement
- Software ease to use
- Customizable development
- Full-field 3D deformation, displacement and strain measurement
- Displacement accuracy 0.01pixel, strain accuracy 50με
- Fatigue acquisition, Analog data synchronization，Virtual extensometer
- Full-field three-dimensional coordinates, strain, displacement, velocity, acceleration, mechanical properties.

Product Parameters

SKUs	RDIC-STD-DH500	RDIC-STD-DH1200	RDIC-STD-BM1200
No. of cameras	2	2	2
Resolution	2448×2048	4096×3000	4096×3000
Full frame rate	75fps	30.5fps	29fps
Measuring Field of View	10~500mm	10~1000mm	10~1000mm
Displacement accuracy	≤ 0.01pixel	≤ 0.01pixel	≤ 0.01pixel
Strain accuracy	≤ 100με	≤ 50με	≤ 50με
Strain Measurement Range	0.005%~2000%	0.005%~2000%	0.005%~2000%

Product Brief

RDIC-IR

RDIC-IR consists of two high resolution cameras, 1 thermal imaging camera, synchronized triggers, measurement software, calibration plates, and graphic workstations.

Key Features

- High resolution non-contact measurement
- Software ease to use
- Customizable development
- Temperature measurement range -20° C~+550° C，1500° C Customized
- Displacement accuracy 0.01pixel, strain accuracy 50με
- Analog data synchronization，IR Analysis Module
- Full-field three-dimensional coordinates, strain, displacement, velocity, acceleration, mechanical properties，temperature field coupling.

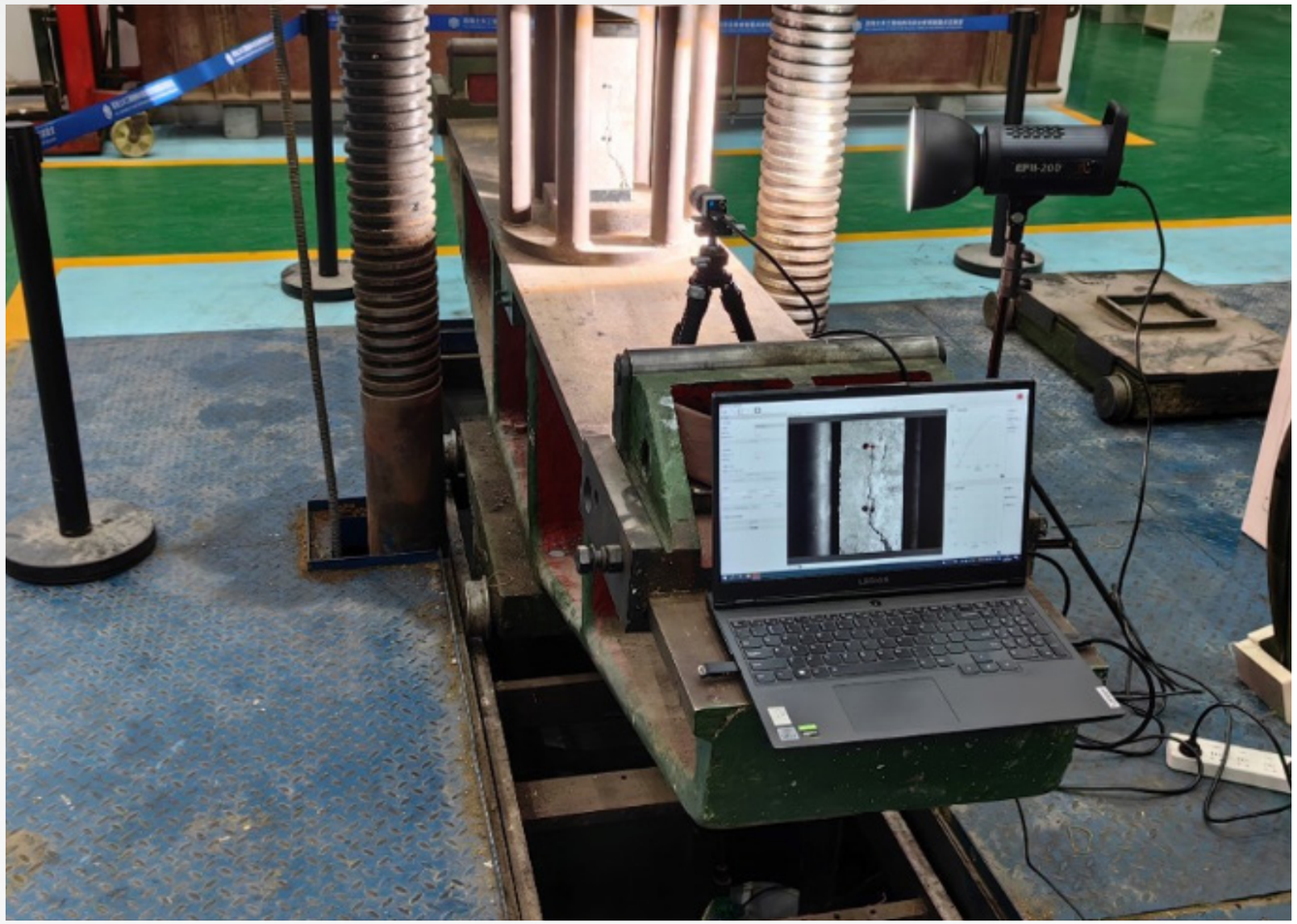
Product Parameters

SKUs	RDIC-IR
No. of cameras	High resolution cameras×2，Infrared cameras×1
Resolution	2448×2048
Resolution @frame	4096×3000 @29fps
IR Resolution @frame frequency	640×512 @25Hz
Displacement accuracy	0.01pixel
Strain accuracy	≤ 50με
Strain Measurement Range	0.005%~2000%
Temperature measurement range	-20° C ~+550° C，1500° C optional
NETD	≤ 50mk

Product Brief

Revealer Video Extensometerometer

RVE is a high precision,non-contact,real time analysis of strain and displacement measurement device.



Key Features

- 16000fps high speed non-contact measurement
- Software ease to use
- Gauge customization
- Real time measurement
- Accuracy ISO 9513 Class 0.5
- nalog data synchronization
- Transverse longitudinal strain, transverse longitudinal displacement, Poisson's ratio, elastic modulus.

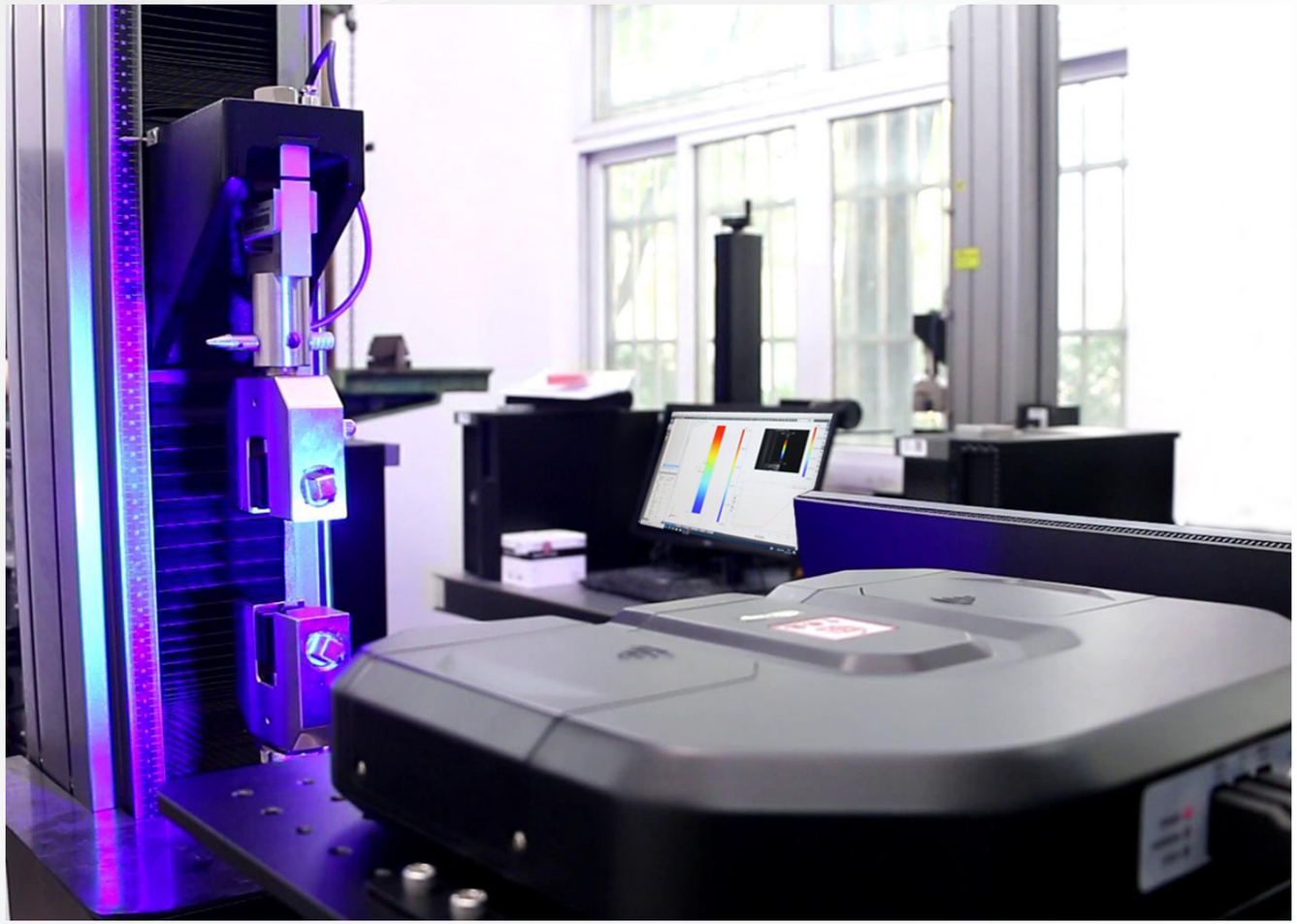
Product Parameters

SKUs	RVE-EDU	RVE-STD	RVE-PRO
Resolution	1.3M	5M	8M
Measurement range	0.005%~500%	0.002%~1000%	0.001%~2000%
Measuring Field	Micro~500mm	Micro-1000mm	Micro-1000mm
Frame	0~40fps	0~40fps	0~40fps
Poisson's ratio	•	•	•
Tester communication	•	•	•
Accuracy Class	ISO 9513 Class 0.5	ISO 9513 Class 0.5	ISO 9513 Class 0.5

Product Brief

RDIC-EDU

The system is a portable and integrated strain measurement platform developed for teaching applications of undergraduate students of mechanics, materials science, civil engineering, water conservancy and geology in colleges and universities.



Key Features

- Non-contact measurement
- Software ease to use
- Deformation and Displacement，Poisson's ratio，modulus of elasticity
- Customized experiments based on the syllabus

Product Parameters

SKU	RDIC-EDU
Resolution @frame	4096×3000 @30.5fps
Measurement range	200×150mm 100×75mm
Displacement accuracy	5μm In-plane 10μm off-plane
Strain accuracy	≤ 50με
Strain Measurement Range	0.005%~2000%
Save images in real time	•
Tester communication	•

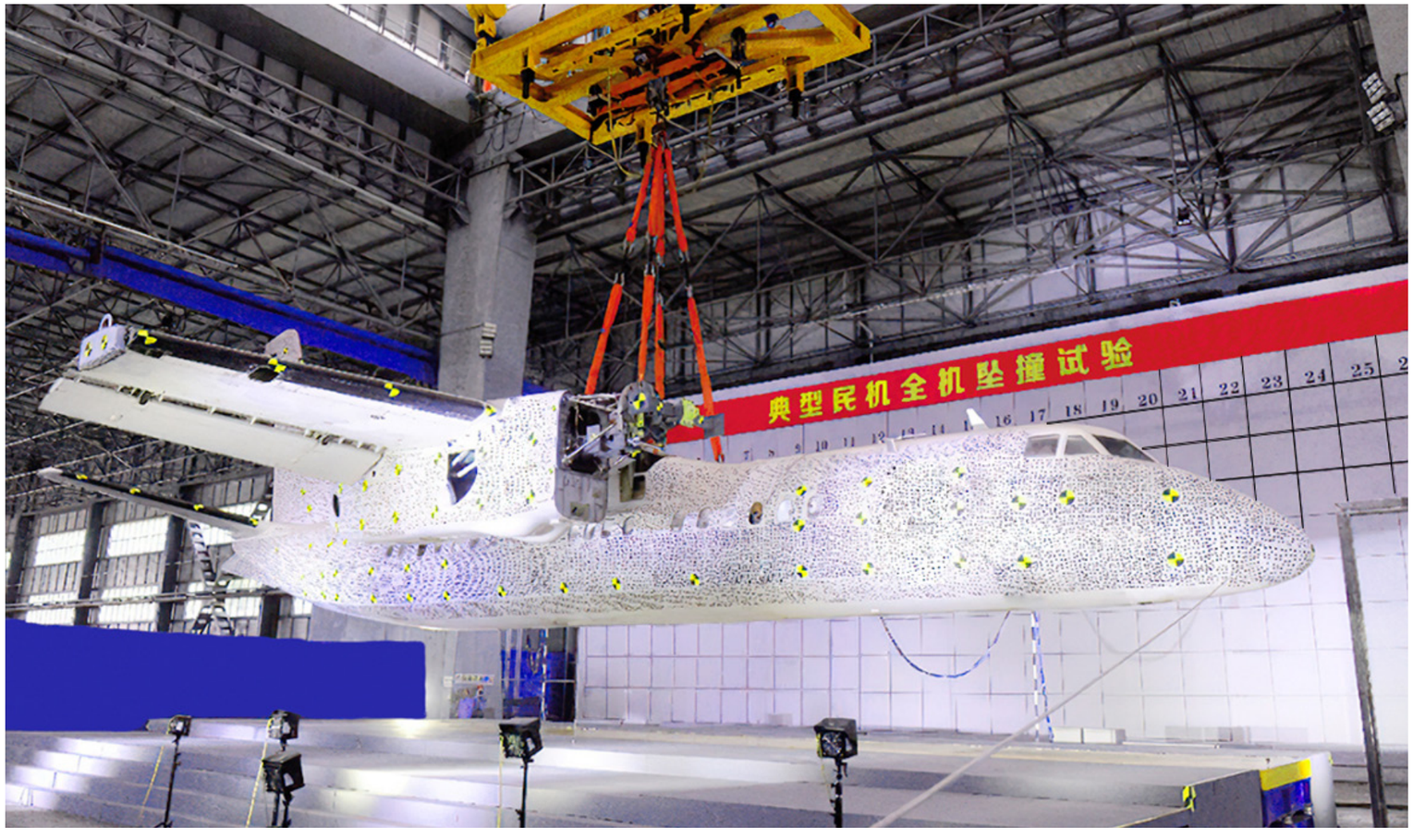
Aerospace Navigation pplications

Research demand

- Structural Strength and Reliability Analysis
- Fatigue and Fracture
- Kinetic analysis
- Wind tunnel experiment
- Extreme shock

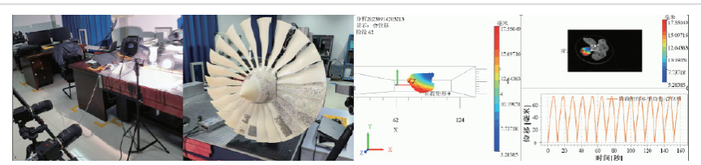
Key devices

- High speed camera captures impact transients from aerospace vehicles, providing sequential raw images for subsequent image processing.
- High speed DIC strain measurement system analyzes impact load, structural acceleration response, and deformation of structural parts, obtains stress response distribution characteristics, and reveals the deformation failure mechanism.

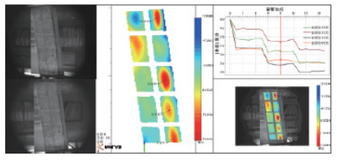


Cases

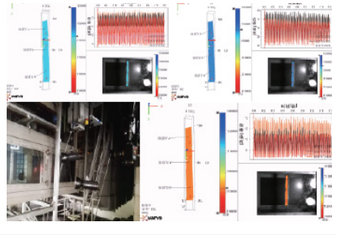
Aero-engine structural design



Fatigue test of metal matrix composites for aircraft skeleton structure



Study of strain field, displacement field, modal state, and high frequency vibration pattern under wind loading



Applications
Civil Engineering, Transportation and Energy

Research demand

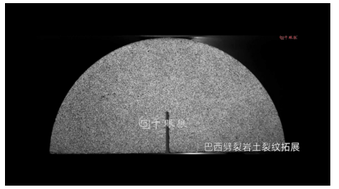
- Study of stress and deformation of structural member materials such as roads, bridges, tunnels, dams, concrete, etc., under external force conditions.
- Study of various loads and stress distributions on key structural components of rail transit vehicles during operation.
- Study the stress and deformation of wind turbine blades under different wind speed and direction conditions to evaluate the aerodynamic loads.

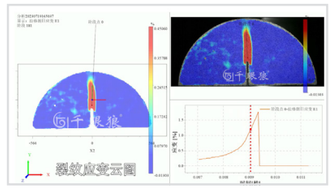
Key devices

- High speed cameras capture sequential images of deformation and displacement under force loads.
- DIC strain field measurement system measures the stress-strain and vibration characteristics of critical structural components under impact, static and dynamic loads.

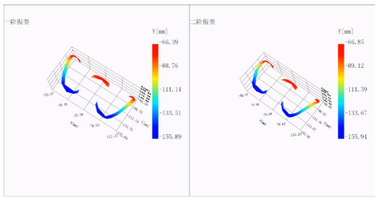
Cases

Brazilian disc splitting

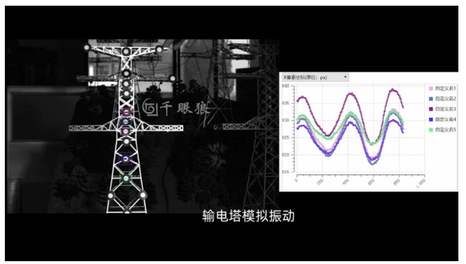




Railway butterfly buckle vibration modal analysis



Simulated vibration of transmission tower



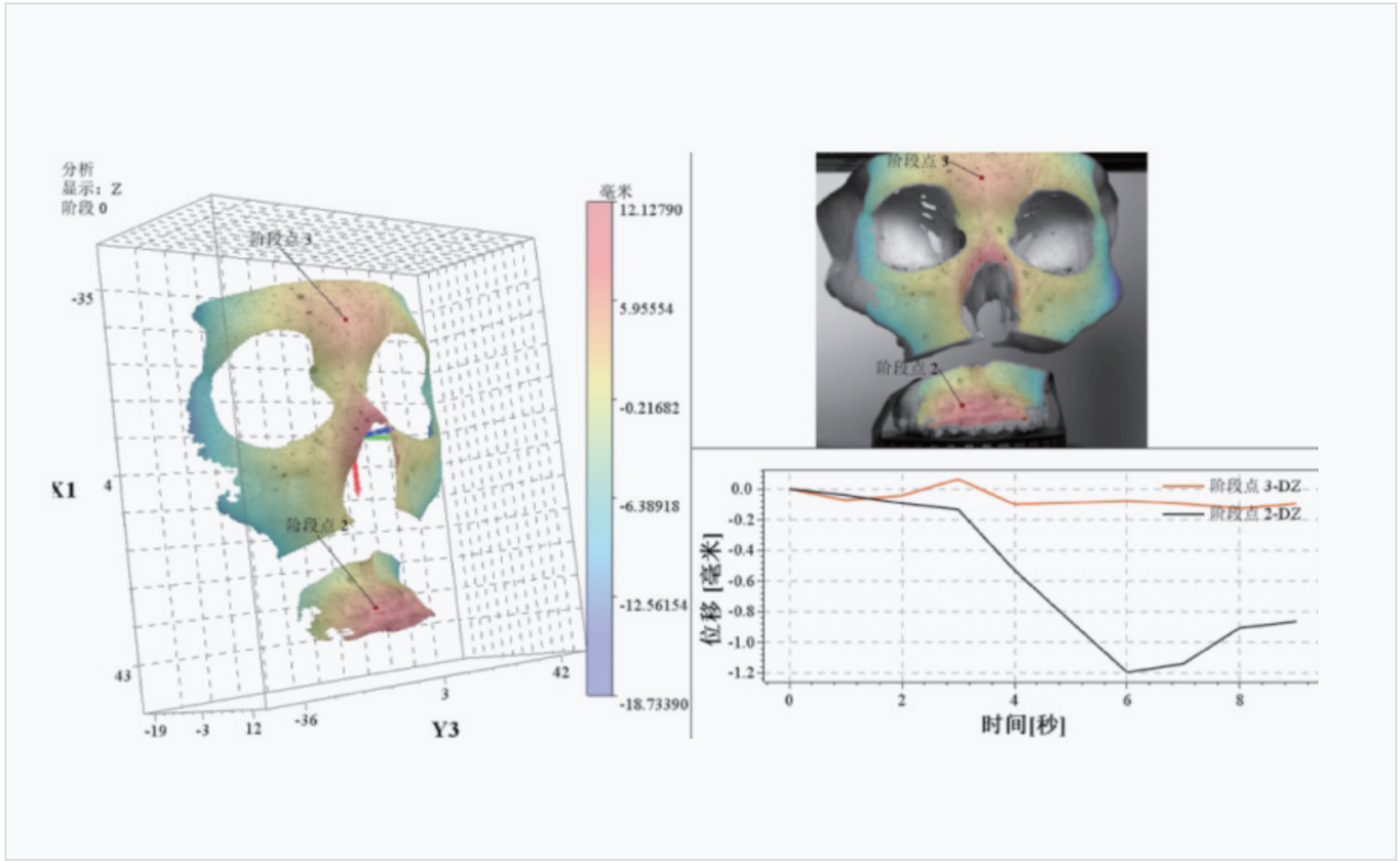
Life Healthcare Applications

Research demand

- Evaluation of mechanical properties of biological tissues
- Evaluation of mechanical properties of biomaterials
- Study of medical device performance

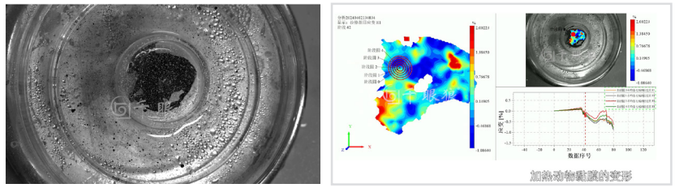
Key devices

- Provide tester and DIC integrated solution, support for non-contact mechanical properties of biological tissues, biological materials test.
- Revealer motion analysis system based on feature point targeting algorithm support measure parameters such as displacement and velocity of target instruments.

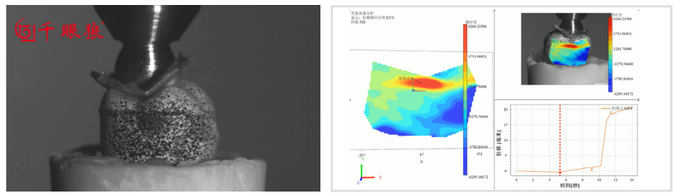


Cases

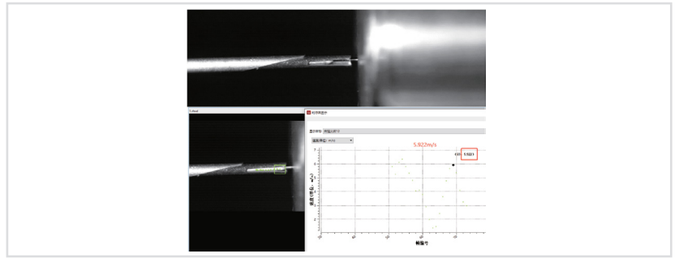
Heat deformation of animal mucosa



Tooth strain



Needle felting instrument evaluation



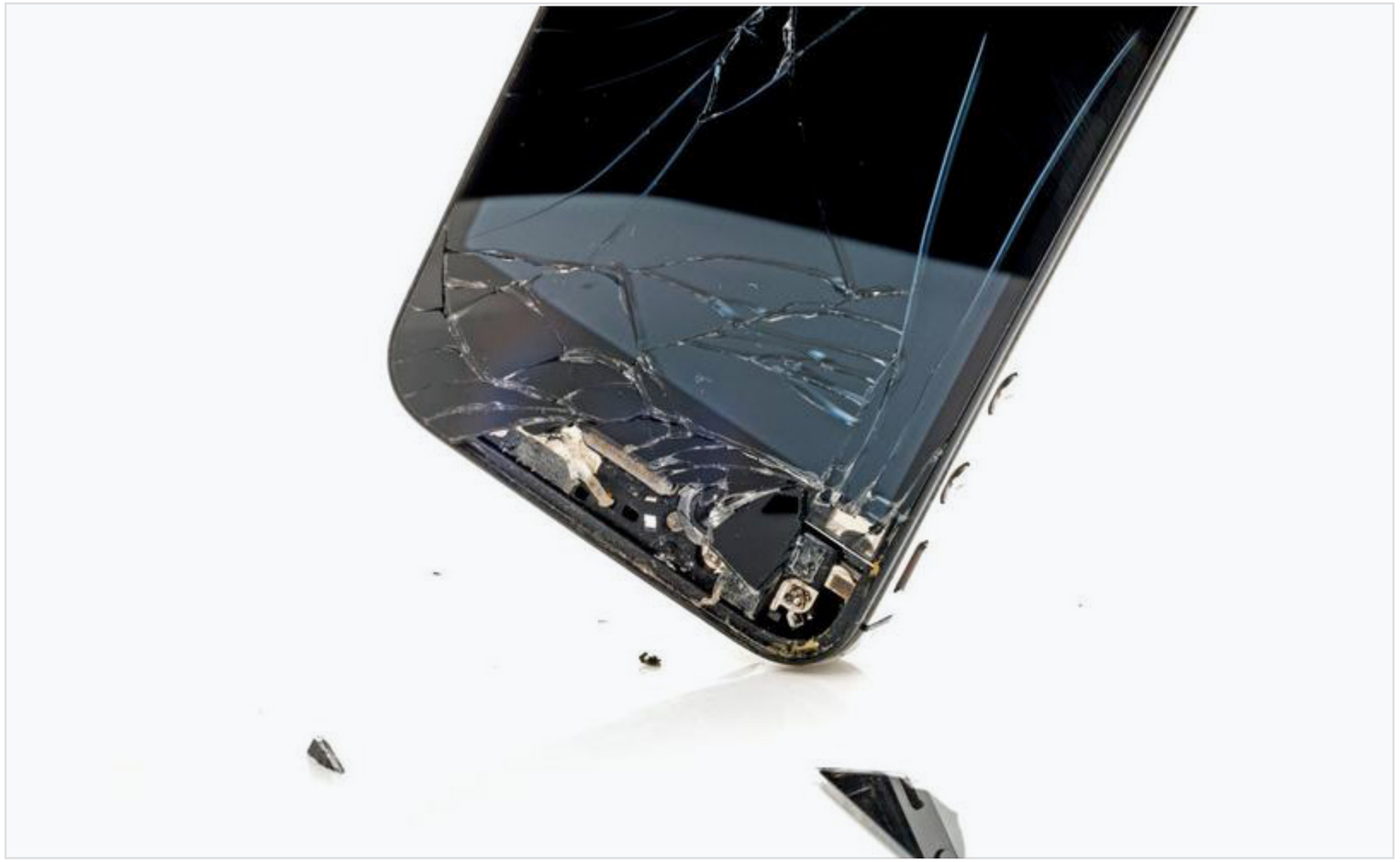
Electronic material machinery applications

Research demand

- Drop performance test for 3C electronic products.
- Mechanical properties of new materials under static, dynamic and thermal loads.
- Vibration characterization of mechanical components.

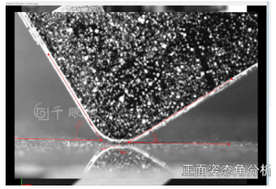
Key devices

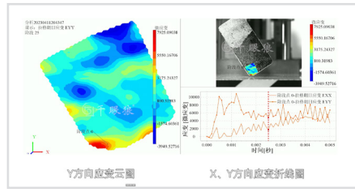
- High speed camera captures transient images of high speed impacts and high frequency vibrations, and acquires 6Dof parameters such as target coordinates and attitude.
- Visualized deformation testing system supports stress-strain analysis under shock and vibration loads for 3C electronics, new energy materials, and mechanical parts.



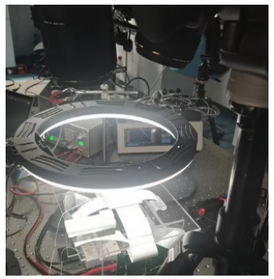
Cases

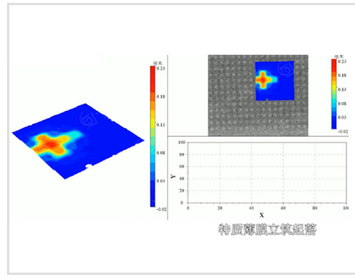
Drop test



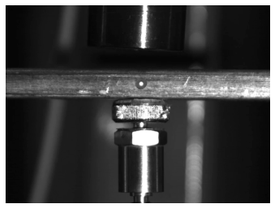


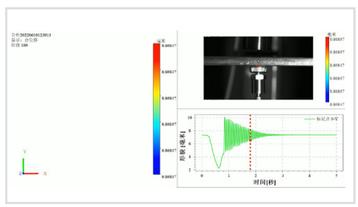
Microfluidic specialty films





Vibration amplitude curve





APPLICATIONS

Applications Extreme Mechanics Experiment

Research demand

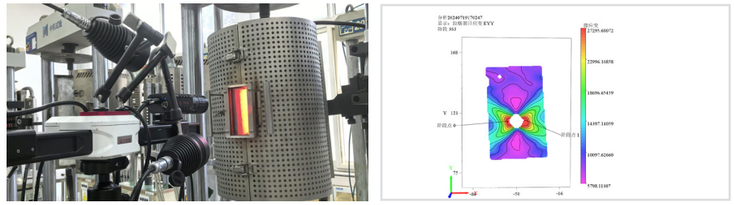
- Extreme high temperature environment test
- Extreme shock environment test
- Multi-physical field coupling measurements

Key devices

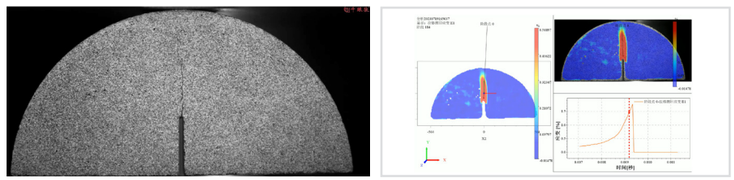
- High speed camera: Full-frame 25000fps captures phenomena such as ultra high speed shock transients and flow displays under supersonic wind loads.
- DIC IR: Measurement of mechanical properties of special materials under high temperature conditions

Cases

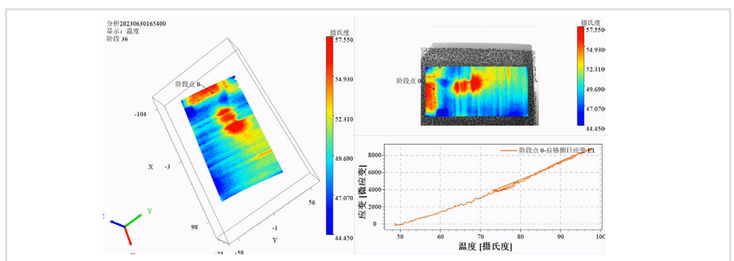
Strain field under thermal loading at 980° C



Crack extension



Coupled temperature and strain field measurements



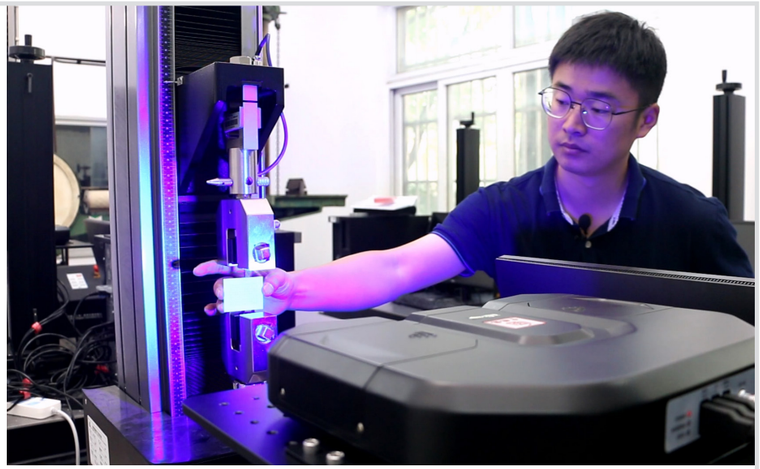
A Teaching and popularization of science pplications

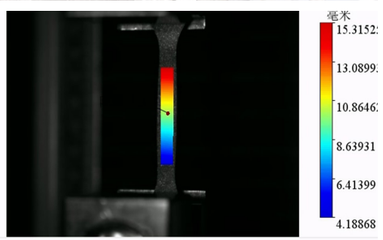
Research demand

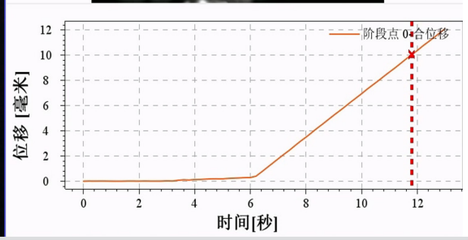
Existing material mechanics experiments are mostly strain gauges, measurement results are not intuitive, can not do the mechanics of loading signals and experimental measurements synchronization results.

Key devices

Revealer DIC EDU can synchronizes mechanical loading signals to the acquired image to meet the mild steel uniaxial tensile, four point bending beam cross section strain and other teaching experiments.

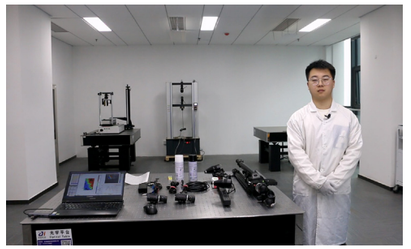


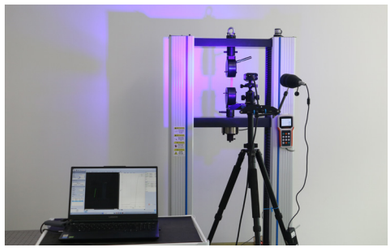


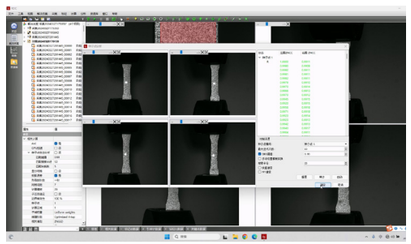


Cases

Mechanics Experiment Center, College of Aerospace and Mechanics, Tongji University





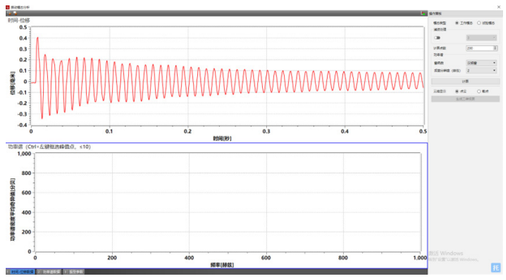


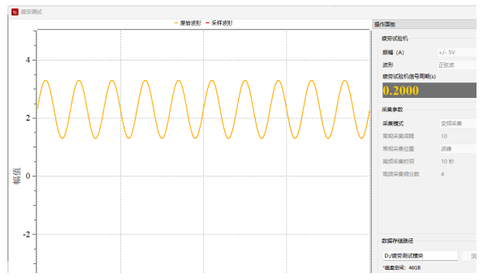
Research Capability

Hardware and software are all self-developed

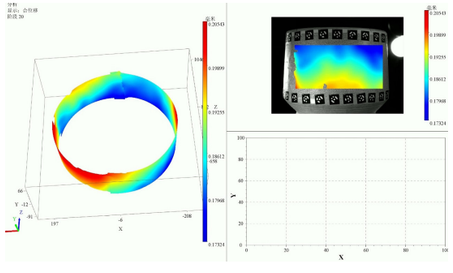
- 25000fps high speed camera
- 21M Pixel high speed camera
- Revealer DIC
- Revealer video extensometer

Measurement modules

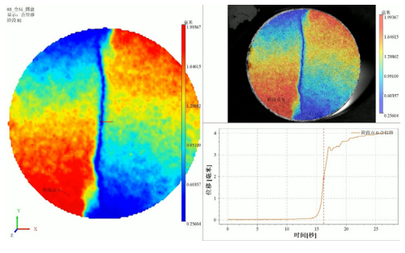




- Fatigue test module
- Vibration modal analysis



- Full cylindrical DIC measurement

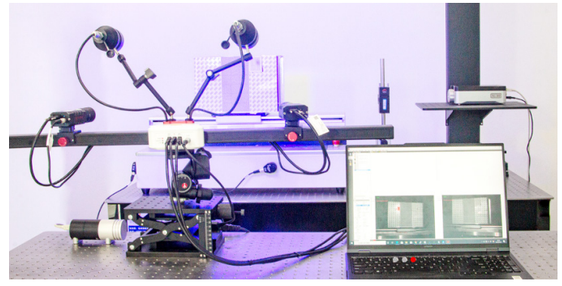


- Global DIC measurement

Authoritative measurement standards

- Sources Beijing Great Wall Institute of Metrology and Testing
- MPE=±0.5ppm，Comparison with laser interferometer

key laboratory



- Revealer Optical Image Measurement Laboratory is one of the key R&D bases built with reference to the standards of metrology research institutes and laboratories of key universities in China, covering an area of 200m².
- The laboratory has a full-time optical measurement team of more than 40 people, including 7 PhDs, providing 20kN pedestal and 5kN benchtop universal testing machines, high speed cameras, video extensometers, optical platforms, laser interferometers and other instruments and equipment.
- The laboratory is open to researchers from universities, research institutes, and technicians from enterprises and institutions.

Lab sharing appointments