



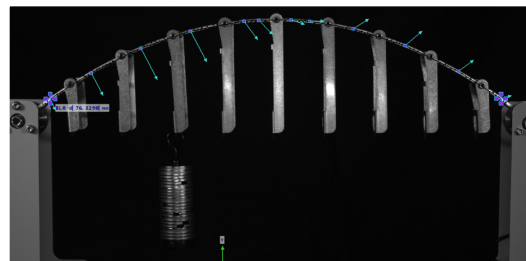
DEFLEX®-2D

ENTRY-LEVEL DIC SYSTEM FOR EDUCATION, MAKING MATERIALS COME ALIVE IN THE LAB

DefleX®-2D is an entry-level, 2D digital image correlation (DIC) system, designed to help students visualise and understand how materials and structures behave under load. The camera and software kit tracks how surfaces stretch, bend and move – turning invisible stresses into clear, visual colour maps of strain and displacement in real time.

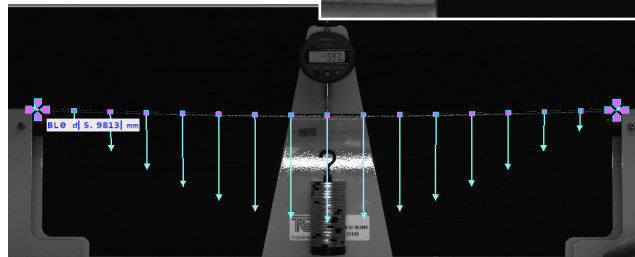
Ideal for material science, structures and mechanical engineering courses and labs, this compact, fully integrated teaching tool makes complex concepts easy to see and explore. DefleX®-2D provides a powerful yet simple way to visualise and analyse strains and deformations meaning students can directly compare experimental data with theoretical predictions or computer simulations, supporting a deeper blended learning experience.

DEFLEX®-2D



TWO-PINNED ARCH (STS10)

DEFLECTION OF BEAMS AND CANTILEVERS (STS4)



TENSILE TEST SPECIMEN (DKS1)



INTRODUCTORY VIDEO

*EXAMPLE SCREENSHOTS: DEFLEX® SOFTWARE ON TECQUIPMENT PRODUCTS

KEY FEATURES AND BENEFITS

- Complete ready-to-use teaching system with DefleX® camera and software for teaching students the principles of digital image correlation (DIC)
- Integrated 6.3 MPx DAHENG camera with LED lighting
- Non-Contact: no sensors fixed on specimen, no contact between the camera and the object/surface
- Fast Setup: Less lab prep, more experiment time, easy to add into an existing lab session
- Used alongside other TecQuipment products for extended learning potential
- Makes invisible stresses visible: enhancing student experiences and engagement
- Visual Learning: Students instantly see how beams bend, bridges flex, or materials stretch
- Bridges theory and practice: links FEA/CAD with real-world results
- Ideal for labs in Materials Science (tensile testing, creep, elasticity), Structures (beam deflection, arches, frames, bridges) and Mechanical Engineering (vibrations, torsion, bending)



WHAT'S INCLUDED

DefleX®-2D includes (reference images overleaf):

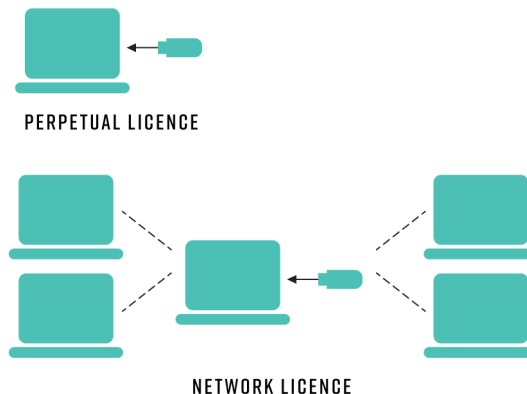
- All-in-one DIC unit with integrated LED light and camera
- Supplied with 12 mm lens (fitted)
- 2 x calibration grids
- Power/USB connection cable
- 2 x LED lights, 2 x light tripods, 1 x backdrop screen and stand
- Marker pens, cable ties, USB software and licence key
- Comprehensive user guide, Five-year warranty and 1-year of technical enhancements

SOFTWARE AND LICENSING

- Included: single-user perpetual licence (USB key)
- Optional: upgrade to a 20-user network licence (DefleX®-2DNet)
- Compatible with Windows 10/11 or Server 2019/2022
- Includes visualisation tools, probes, input/outputs and scripting option

DefleX®-2D runs on the integrated DefleX® software to deliver high-quality measurement results while providing an engaging user experience.

DefleX® is aimed at education for use in universities, colleges and other specialist training centres, and shall only be installed on equipment owned or used by such institutions. Please contact TecQuipment if you wish to use DefleX® for published research or commercial purposes.



RECOMMENDED ANCILLARIES

*Refer to separate product datasheets for full specifications.

- DefleX® Speckling Kit (SPK1)*
- DefleX® Starter Kit (DSK1)*
- DIC Educational Network Licence (DefleX®-2DNet)
- Additional lenses (see table on page 5 for details)
- Either an annual or multi-year technical enhancement package up to five years (DefleX®-2D-TE1-TE5)



SUITABLE EXPERIMENTS/PRODUCTS

NEXT GENERATION STRUCTURES:

- Deflection of Beams and Cantilevers (STS4)*
- Two-Pinned Arch (STS10)*
- Fixed Arch (STS11)*
- Curved Bars and Davits (STS14)*
- Plastic Bending of Beams (STS15)*
- Plastic Bending of Portal Frames (STS16)*
- Frame Deflections and Reactions (STS18)
- Simple Suspension Bridge (STS19)

MATERIALS TESTING AND PROPERTIES:

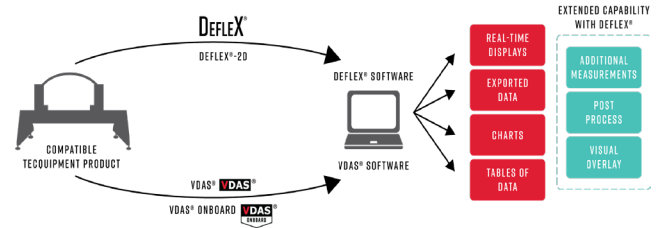
- Universal Testing Machine (SM1000)
- Benchtop Tensile Testing Machine (SM1002)*
- Creep Machine (SM1006)*
- Materials Laboratory with Data Capture (MF40 MKII)*
- Beam Apparatus (SM1004)
- Hooke's Law and Spring Rate (SM110)
- Stiffness, Bending and Torsion (TE16)

THEORY OF MACHINES:

- Free Vibrations (TM164-167)
- Free and Forced Vibrations (TM1016V)

*Sample results available for these experiments/products

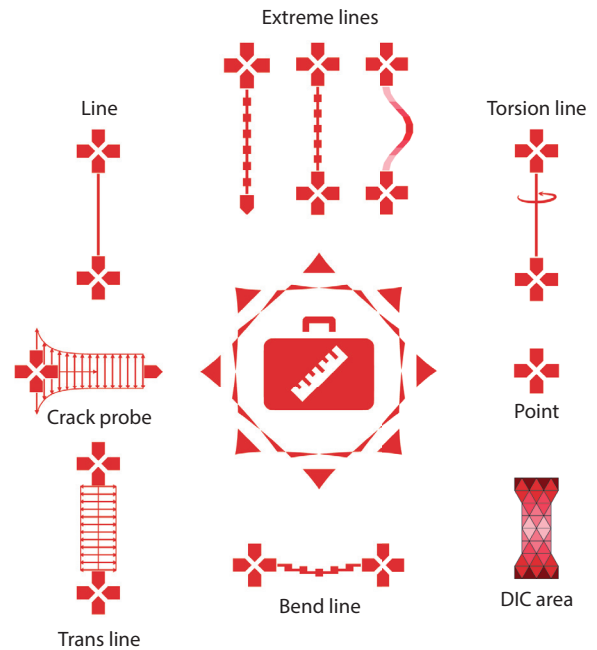
Deflex®-2D can be used as a complementary learning aid to TecQuipment products (the list above is not definitive) and other suitable third-party lab products.



SOFTWARE PROBES AVAILABLE

Can be used individually or in combination.

Measurements taken with Deflex® are performed in real-time and/or utilise a playback feature.



DEFLEX® SYSTEM SET UP



DIC UNIT TECHNICAL SPECIFICATIONS

- Resolution: 6.3 megapixels (fine detail capture).
- Speed: 60 frames per second at full resolution.
- Field of view: 200–2000 mm (small to large specimens).
- Standards aligned: Meets international testing requirements (ASTM, ISO, JIS).

OPTICS:

- A 6.3 Mpx CMOS camera integrated into one container box unit with built-in LED lights
- Included lens: 12 mm
- Additional lenses (8–75 mm) available

COMPUTER REQUIREMENTS (COMPUTER NOT SUPPLIED):

- Min.: 2-core 2 GHz CPU, 8 GB RAM, 8 GB HDD
- Recommended: 8-core 4 GHz CPU, 16 GB RAM, 1 TB SSD
- 1 × USB 3.0, 2 × USB 2.0
- Windows 11 64 bit / Windows 10 64 bit
- Windows Server 2019 / Windows Server 2022

ELECTRICAL SUPPLY:

- 100–240 VAC, 50/60 Hz, 0.5 A

OPERATING CONDITIONS:

- Laboratory environment

TEMPERATURE RANGE:

- 25°C to +55°C (Storage)
- +5°C to +40°C (Operating)

OPERATING RELATIVE HUMIDITY RANGE:

- 80% at temperature <31°C decreasing linearly to 50% at 40°C

LENSES

Selecting the right lens can optimise accuracy by maximising the number of available pixels for the measured area.

* Supplied as standard



PRODUCT REFERENCE	FOCAL LENGTH [MM]	SENSOR FORMAT	MINIMAL FOCUSING DISTANCE [MM]	F-STOP	DIMENSIONS [MM]	WEIGHT [G]	FILTER SIZE	MOUNT
Deflex® LENS08	8	2/3"	100	2.8	Ø32 x 35.5	60	M30.5x0.5	C
-	12*		100		Ø29 x 43.5	60	M27x0.5	
Deflex® LENS16	16		250		Ø29 x 29	40	M27x0.5	
Deflex® LENS25	25		200		Ø29 x 31.5	40	M27x0.5	
Deflex® LENS35	35		250		Ø29 x 38.5	50	M27x0.5	
Deflex® LENS50	50		300		Ø29 x 56	65	M27x0.5	
Deflex® LENS75	75		400		Ø36 x 75	100	M34x0.5	

DIC UNIT TECHNICAL OVERVIEW

DIC EDUCATIONAL 2D EDITION (COMES WITH ONE USB LICENSE KEY AND ONE CAMERA WITH 12MM LENS)	
OPTIONAL CAMERA LENSES FOR DIFFERENT FOCAL LENGTHS:	
DefleX®-LENS08	DefleX® 8MM Lens
DefleX®-LENS16	DefleX® 16MM Lens
DefleX®-LENS25	DefleX® 25MM Lens
DefleX®-LENS35	DefleX® 35MM Lens
DefleX®-LENS50	DefleX® 50MM Lens
DefleX®-LENS75	DefleX® 75MM Lens
MULTIPLE USER LICENSE:	
DefleX®-2D-NET	DIC Educational Network License (20 users annual license)
ANNUAL UPDATE FOR TECHNICAL ENHANCEMENTS:	
DefleX®- 2D-TE1	DefleX®-2D 1 Year Technical Enhancements Extension
DefleX®-2D-TE5	DefleX®-2D 5 Year Technical Enhancements Extension