



DEFLEX®

DEFLEX®-EDU

A digital image correlation (DIC) system to teach students how to measure and visualise surface deformations, strains and displacements in materials and shapes.



SCREENSHOT OF THE DEFLEX® SOFTWARE

KEY FEATURES

- Complete system including camera, stands and lighting
- Includes Deflex® software
- Includes calibration set
- Frame rate – full resolution: 60 Hz; 25% width: 240 Hz
- System can be used on wide variety of TecEquipment products
- Meet requirements for ASTM E83, ISO 9513 and EN 10002-4 standards

KEY BENEFITS

- Non-contact method - no contact between the camera and the object/surface
- Visualises strain measurement and shape deformation
- Enhances student learning experience
- Fast and easy to set up
- Teaches students principles of digital image correlation

KEY SPECIFICATIONS

- Single low-noise camera unit with in-built LED light
- Resolution: 6.3 MPx
- FOV/resolution @ distance 300 mm: 190/0.5 μm
- For a wide range of measuring areas, 200–2000 mm
- Deflex® software
- One year of technical enhancements and customer support



DESCRIPTION

The Deflex®-Edu edition offers a student-friendly solution for visualising optical deformation measurements on various object sizes. It is equipped with camera measurement and image processing software for analysing motions, displacements and strains. It can measure visible features on objects and material surfaces like screws, joints, edges, grooves and composite structures. This is accomplished with the aid of a speckled pattern applied to the relevant parts of the target surface area. Instructions for applying the pattern are given in the user guide.

Versatile in application, the TecEquipment DIC unit is suitable for uniaxial testing (ISO 6892), biaxial testing (ISO 16842) and shear testing, as well as three-point and four-point bending (ISO 178) and torsion testing, making it a comprehensive tool for material and structural analysis.

WHAT'S INCLUDED

The Deflex®-Edu edition includes:

- All-in-one DIC unit with integrated LED light and camera (supplied with 12 mm lens)
- Power/USB connection cable
- 2 x calibration grids
- USB licence key
- USB device with installation files and comprehensive user guide
- Deflex® software
- Camera tripod
- Light mounting arm
- 2 x additional LED lights
- Light tripod
- Three years of technical enhancements
- Backdrop screen
- Sturdy storage box
- 1 x each: black permanent fine tip marker pen, black non-permanent fine tip marker pen, white fine tip paint pen
- Cable tie hook and loop
- One year of technical enhancements and customer support

STANDARD FEATURES

- Comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union Directives
- ISO9001 certified manufacturer

RECOMMENDED ANCILLARIES

- DIC Educational Network Licence (Deflex®-EduNet)
- Additional lenses (see table on page 5 for details)
- Annual update for technical enhancements (Deflex®-Edu-TE1)
- Five-year update package for technical enhancements (Deflex®-Edu-TE5)



RECOMMENDED 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 Portals (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 MK II)*
- Beam Apparatus (SM1004)
- Hooke's Law and Spring Rate (SM110)
- Stiffness, Bending and Torsion (TE16)

THEORY OF MACHINES:

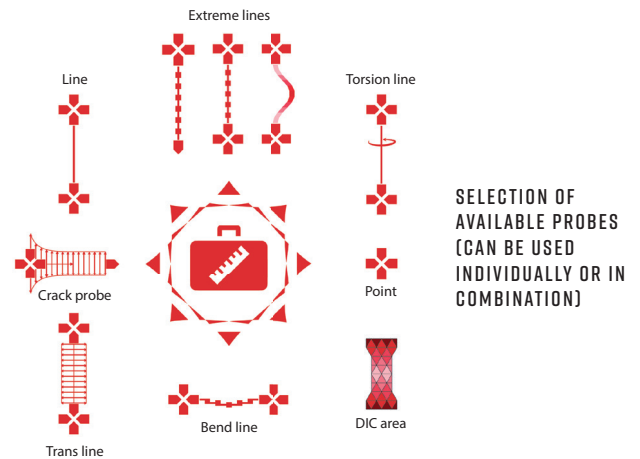
- Free Vibrations (TM164-167)
- Free and Forced Vibrations (TM1016V)

*Sample results available for these experiments/products

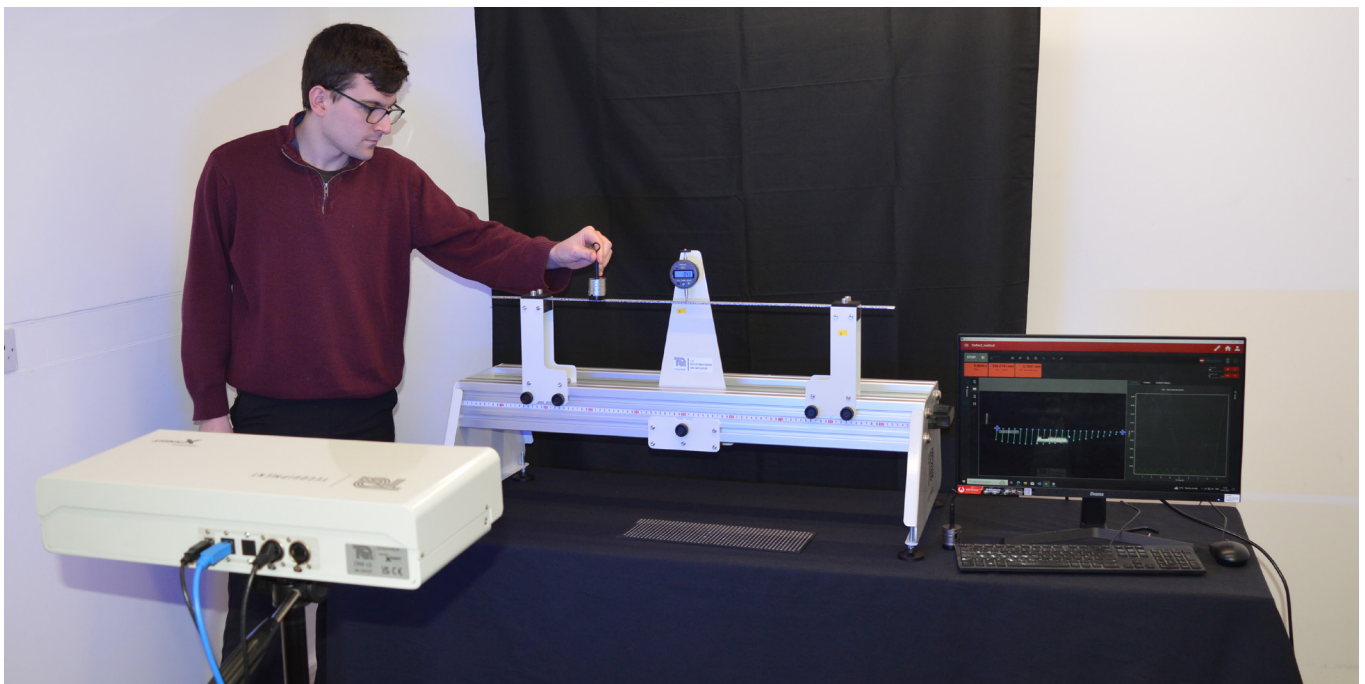
SOFTWARE

The DefleX®-Edu edition runs on the DefleX® software to deliver high-quality measurement results while providing an engaging user experience.

- Quick set-up and simple measurement
- Wide range of measurement tools
- Advanced DIC features and I/O
- Postprocess functionalities
- Several measurement probes allow measurements to be tailored to the experiment being conducted



Measurements taken with DefleX® are performed in real-time and/or utilise a post-processing feature to get the most out of the optical deformation measuring device and acquire the most complex deformation analysis.



LICENSING

Deflex®-Edu comes with a perpetual software licence linked to a USB dongle key. This allows the user to install the software on unlimited computers and use only the one where the licence key is plugged in. This way of licensing makes it easy to switch computer in case of a PC breakdown.

The Deflex® perpetual software licence can be optionally extended by purchasing Deflex®-EduNet, a network licence for classes at universities or colleges in batches of 20 annual licences for educational purposes, available separately.

The Deflex®-Edu licence is aimed at students at universities, colleges and other specialist training centres and shall only be installed on equipment owned or used by such institutions.



DEFLEX®-EDUNET -
OPTIONAL ANNUAL NETWORK
LICENCE PACK (20 USERS)

SUPPORTED OPERATING SYSTEM

- Windows 11 64 bit / Windows 10 64 bit
- Windows Server 2019 / Windows Server 2022

Latest release on date of purchase

ESSENTIAL SERVICES

ELECTRICAL SUPPLY:

- 100-240 VAC, 50/60 Hz, 0.5 A

MINIMUM COMPUTER HARDWARE:

- 1 x USB 3.0
- 2 x USB 2.0
- Memory 8 GB
- Hard disk 8 GB HDD
- CPU: Intel/AMD 2 GHz 2-core

RECOMMENDED COMPUTER HARDWARE:

- 1 x USB 3.0
- 2 x USB 2.0
- Memory: 16 GB DDR4
- Hard disk: 1 TB SSD
- CPU: Intel / AMD: 4 GHz 8-core

MINIMUM PC OPERATING SYSTEM TO RUN DEFLEX® SOFTWARE:

- Windows 11 64 bit / Windows 10 64 bit
- Windows Server 2019 / Windows Server 2022

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory environment

STORAGE TEMPERATURE RANGE:

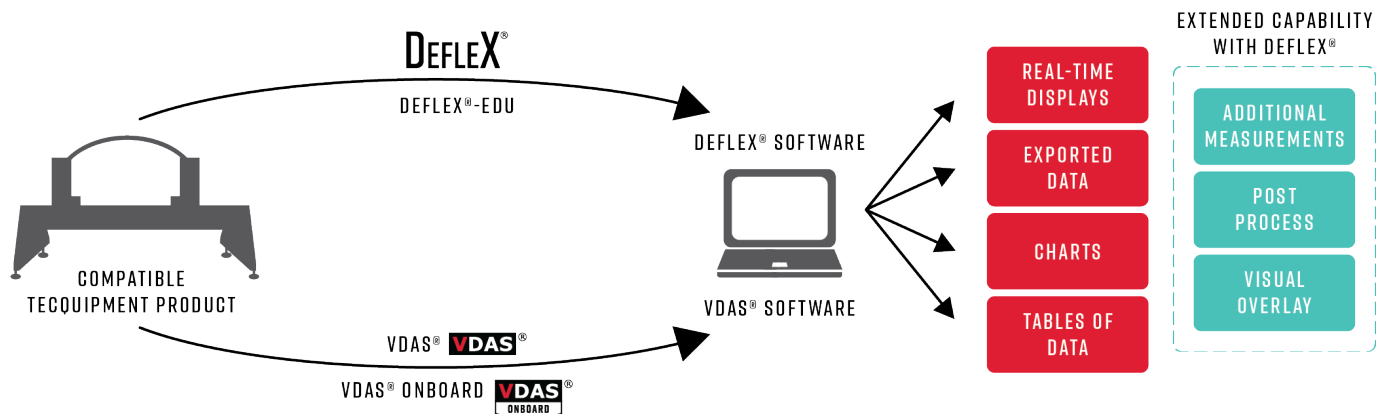
-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

30% to 70%



LENSES

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



DEFLEX® LENS08



(SUPPLIED) E12



DEFLEX® LENS16



DEFLEX® LENS25



DEFLEX® LENS35



DEFLEX® LENS50



DEFLEX® LENS75

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	

* Supplied as standard

ISO 9513 class	Field of View [mm]		Working Distance [mm]						
	TECQUIPMENT DIC EDU		LENS FOCAL LENGTH [MM]						
	HEIGHT	WIDTH	08	12	16	25	35	50	75
0.5	190	125	220	344	460	743	1080	1583	2275
1	380	250	473	718	961	1512	2159	3133	4572
2	760	505	980	1476	1964	3049	4318	6234	9166

ASTM E83 class	Field of View [mm]		Working Distance [mm]						
	TECQUIPMENT DIC EDU		LENS FOCAL LENGTH [MM]						
	HEIGHT	WIDTH	08	12	16	25	35	50	75
A	3860	2580	5112	7575	10148	15559	21932	31531	46638
B1	19300	12900	25692	37998	50910	78081	109661	157526	233277
B2	38600	25800	51417	76027	101862	156188	219321	315020	465573
C	193000	129000	257217	380257	509478	781045	1096607	1574970	2332963