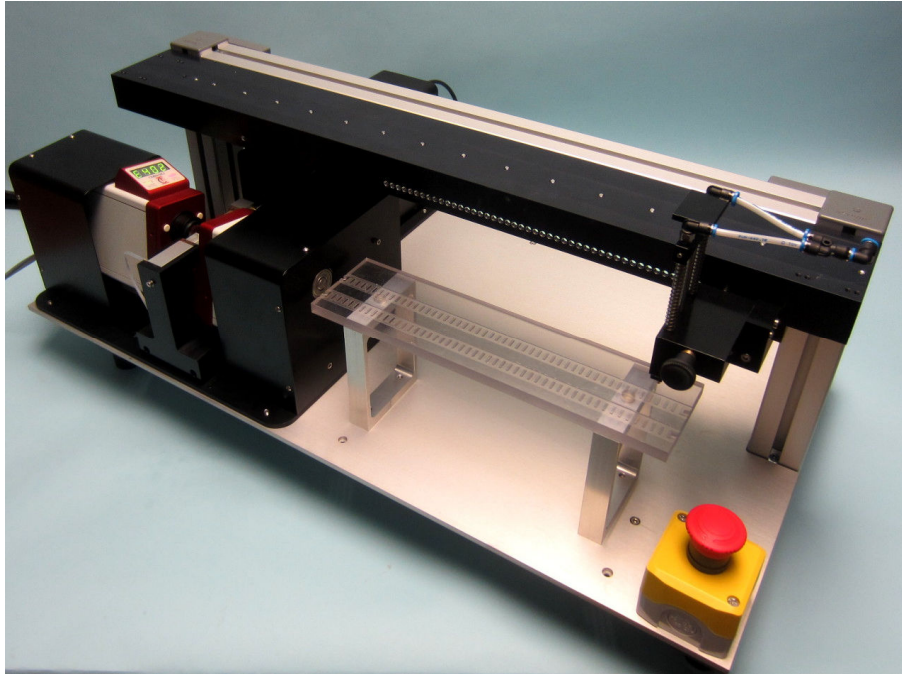


## Manual or Automated LEX/LDS System



The Dia-Stron LEX/LDS System is a cassette based automated dimensional and tensile instrument for engineering fibres or filaments.

## General Information

### Principal benefits

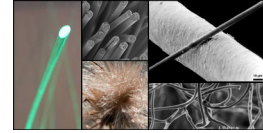
- Direct diameter measurement
- Manual/Automated sample loading system
- High throughput, 50 specimen cassette
- Post-testing specimen recovery
- Small footprint & low weight
- Easy to set-up & use
- Low maintenance & robust

### Application examples

- Single carbon filament tensile testing
- Diameter measurement of ultra fine wires

### System Description

The LEX/LDS system was developed to overcome the low productivity associated with the manual testing of mechanical properties of single fibres or filaments. The system is based on a linear sample cassette, which allows the manual or automatic measurement of up to 50 pre-mounted fibre specimens. The LEX/LDS instrument is supplied as a complete system comprising mechanical unit, control unit, pneumatics unit, and software for Windows OS.



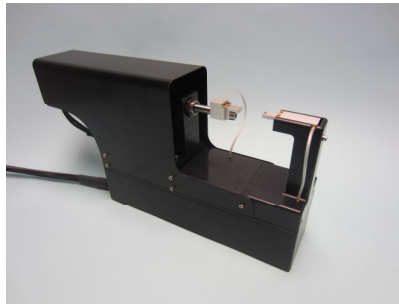
## Specifications

### LEX820 module

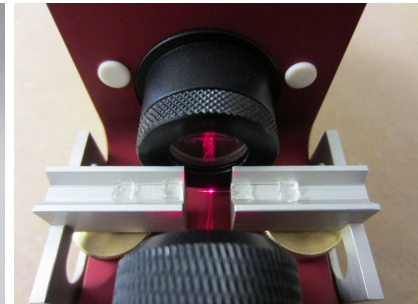
Extension range	3-53mm
Speed range	0.01 to 2.6mm/s
Force range	0 to 2.5N 0 to 20N
Force resolution	0.05mN (2.5N) 0.5mN (20N)
Displacement resolution	1µm
Displacement accuracy	50µm
Load cell linearity	±0.1% full scale

### LEX820

The LEX820 is a high resolution extensometer developed for fine fibre applications. At its heart, a DC micrometer drive offers exceptionally smooth travel combined with high positional repeatability. The module is designed for fibres which fail at low strain values and provides highly detailed stress/strain data. The LEX820 can be supplied with two load cells (2.5N and 20N).



LEX820



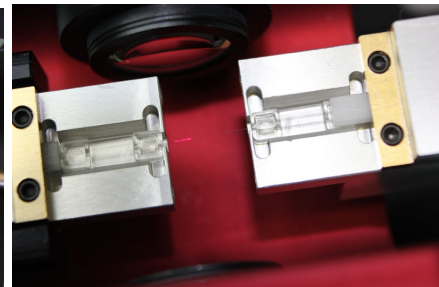
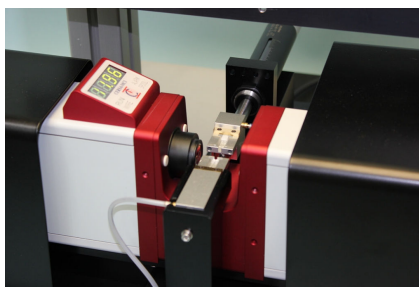
LDS0200

### LDS0200 module

Measurement range	5 to 150µm
Diameter resolution	0.01µm
Diameter repeatability	±0.03% of the diameter

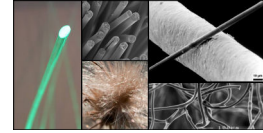
### LDS0200

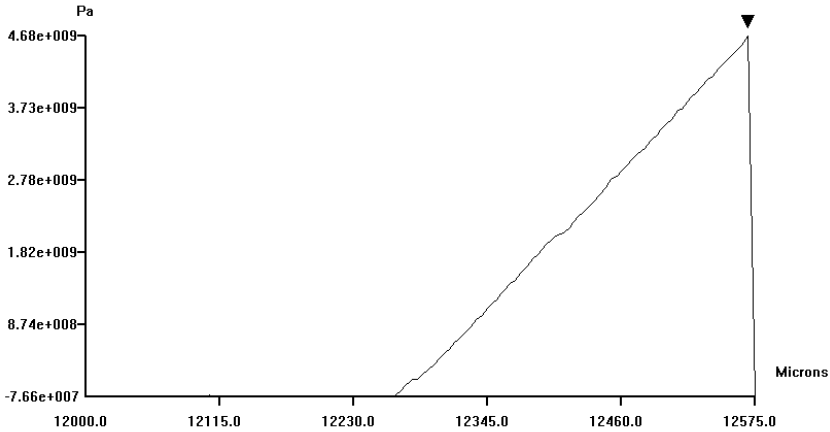
The LDS0200 is designed to perform direct diameter measurements of very fine fibres such as carbon, ceramic, basalt filaments or metallic wires. The measurement principle is based on laser diffraction which enables diameter measurements down to a few microns. The LDS0200 is calibrated, temperature compensated and insensitive to vibrations due to the high speed scanning rate. It is a proven and robust measurement module with no moving parts and a high MTBF.

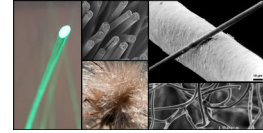


### Integration of the LDS0200 with the LEX820

The LDS0200 and the LEX820 are integrated into one metrology module to guarantee the specimen straightness and orthogonality with the laser beam for high precision diameter measurements. The unique LDS0200 tilting platform ensures that misalignment due to specimen mounting is automatically corrected.

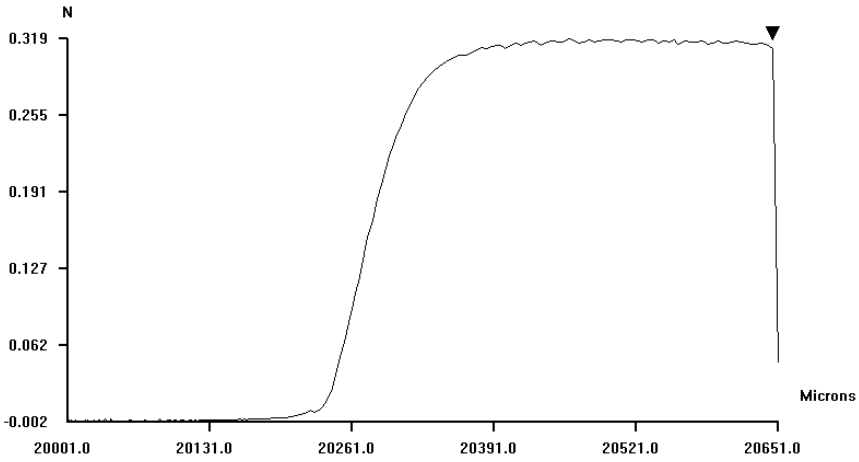


<b>Manual/Automated Sample Loading System</b>		<p><b>Manual (MLS1500), Automated (ALS1500) Sample Loading System</b></p> <p>The main purpose of the sample loading system is to transport efficiently and safely fragile specimens from the storage cassette to the metrology modules. The manual loading system (MLS1500) is an economical version of the ALS1500. The pick and place actions are performed manually. Both loading systems use a vacuum suction to transport specimens from the storage cassette to the measurement modules. The sample loading system offers a set of specimen gauge lengths to accommodate most applications. After testing, specimens can be either discarded or placed back onto the storage cassette for further inspection.</p> <p>The main benefits from the automated sample loading system:</p> <ul style="list-style-type: none"> <li>● High testing productivity</li> <li>● Improved data quality</li> <li>● Specimen integrity</li> <li>● Safety and ergonomics</li> </ul>
Capacity	Up to 50 specimens	
Specimen gauge lengths	4, 12, 20 or 30mm	
Specimen mounting	1-part plastic tabs 2-part plastic tabs	
Overall width	800mm	
Overall depth	500mm	
Overall height	400mm	
Overall weight	15kg	
<b>Programmable Features</b>		<p><b>Dedicated software – UvWin</b></p> <p>UvWin 3 software controls the measurement system. Several methods can be run on the system such as tensile, hysteresis, stress-relaxation, and creep tests. Parameters for these methods can be easily edited within the software. UvWin enables automatic data correction for system compliance.</p>
Methods	<ul style="list-style-type: none"> <li>● Stress/Strain with break detection</li> <li>● Stress relaxation</li> <li>● Creep</li> <li>● Hysteresis</li> </ul>	
		 <p style="text-align: center;"><i>Tensile data for a 7µm carbon filament (12mm gauge length)</i></p>



Content	
UV1000 Control unit PU1100 Pneumatic Unit Sample Loading System LEX/LDS Module USB and Power cords UvWin software for Windows OS Linear sample cassette Specimen Mounting Set	
Requirements	
Power Supply	85-265vac 47-63Hz, 100W
Compressed Air	<ul style="list-style-type: none"> <li>• Dry, clean compressed air</li> <li>• 4.5Bar min 20l/min</li> </ul>
Computer	<ul style="list-style-type: none"> <li>• Windows OS (XP, Vista, 7 or 8 – 32/64bits)</li> <li>• 2 x USB ports</li> </ul>

UvWin also offers a number of integrated data processing tools which includes 1 or 3 phase tensile analysis, hysteresis analysis and stress relaxation. The raw data can be exported as a text file. UvWin is compatible with the latest versions of the Windows OS.



*Tensile data for a 12µm tungsten fibre (20mm gauge length)*

**Testing standards**

The Dia-Stron LEX/LDS system is compatible with the following standards:

- ISO 11566: Determination of the tensile properties of single-filament specimens
- ASTM D 3822-07: Standard Test Method for Tensile Properties of Single Textile Fibers
- ASTM C 1557-03: Standard Test Method for Tensile Strength and Young’s Modulus of Fibers
- JIS R 7601: Testing Methods for Carbon Fibers