

# Tension-Free™ Modular Desktop Endurance Testing System v3 Jig for Tension-Free™ Clamshell-type Flexing CS-Teardrop Cartridge

Tension-Free™ Clamshell-type flexing test for planar objects including Flexible Displays, OLED devices, Barrier Film, Flat Cables, Flexible Printed Circuits, Wearables & automobile applications, and for linear objects including Cables (Electric Wires, Optical Fibers), Harnesses, Cable Guides, Tubes, Wires, Fibers, Wearables & automobile applications

The Tension-Free™ Double Jointed Clamshell structure can flex samples with a 0.5 mm radius without putting tensile stress on the sample. Samples will change naturally.

The sample can be mounted on a cartridge and then loaded onto the test jig.



## CS-TD

YUASA SYSTEM has been developing Tension-Free™ endurance testing systems since 2012. With our in-house expertise in mechanical, electrical, and software engineering, we have developed accurate testing methods for next generation devices, components, and materials. Tension-Free™ endurance testing reduces product design time by producing more consistent and reliable test data. Samples undergo the desired testing without being subjected to undesired tension introduced by the needs of the test equipment.

The DR11MR stepping motor unit (Rotary Reciprocating Unit) drives the test jig for Tension-Free™ Clamshell-type flexing of linear and planar objects. The stepping motor provides greater accuracy. Fully automatic testing is possible because of the disconnection detector and preset counter.

The Tension-Free™ Clamshell-type flexing test jig enables flexing tests without tension for linear and planar objects. The cartridge with the mounted sample can be removed from the test jig for microscopic examination. The sample can be inspected without removing it from the cartridge. Testing can resume by simply placing the cartridge back on the jig. The Clamshell jig can be placed in an environment chamber for testing.

The CS-Teardrop Cartridge uses a different cartridge to allow the sample to flex in a teardrop shape rather than a simple semi-circle shape. Characteristics of the teardrop shape can be controlled by adjusting four parameters: Neck, Length, Width, and Offset. The Teardrop Cartridge can be used with the CS jig and the CS-Twin jig, and with motor units DMLHP, DR11MR, and DR11MR4 driving the CS or CS-Twin jig.

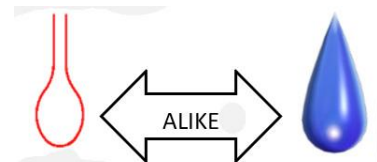
# Jig for Tension-Free™ Clamshell-type Flexing CS-Teardrop Cartridge

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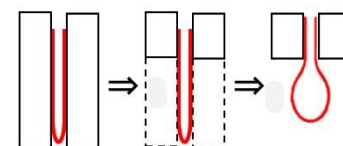
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The sample can be mounted on a cartridge and then loaded onto the test jig.

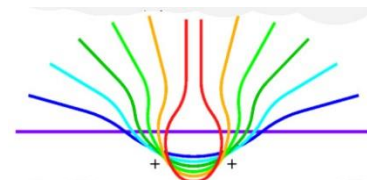
Tension-Free™ Clamshell-type Flexing Test	
<b>Specifications - Jig</b>	<b>CS-Teardrop</b>
Jig Model Number	
Sample	Sheet or Linear samples
Sample thickness	1 mm (0.039") maximum
Sample width	110 mm (") maximum
Sample length minimum	
Sample length maximum	135.6 mm (")
Optional Cartridge	N/A
Bending angle	0 - 180°
Bending radius	
Bending force	0.7 Nm (0.52 foot pounds) maximum
Permissible Torque	6.5 Nm (4.8 ft lb)
Bending speed	about 5 - 60 rec/min (30 - 360 deg/sec)
Weight - Jig	about 8.5 kg (18.5 lb)
Weight - Cover	about 3.0 kg (6.6 lb)
Dimensions (mm)	400mm x 260mm x 180mm (WDH)
Dimensions (inches)	15.75" x 10.2" x 7.1" (WDH)
<b>Specifications - Cartridge</b>	
Weight - Cartridge (1 set)	about 1.0 kg (2.2 lb)
Dimensions (mm)	178mm x 135.6mm x 19mm (WDH)
Dimensions (inches)	7.00" x 5.34" x 0.748 (WDH)
Shims to set flexing radius	0.05 - 5.0 mm (0.002 to 0.2 ")
<b>Specifications - Base Unit</b>	Rotary Reciprocating Unit
Machine Model Number	DR11MR
Power supply	AC (100V-240V, 50Hz/60 Hz, 500VA)
Motor	Stepping Motor Type
Motor power	DC 48V, 3.55A, 100W
Gear box	1/15
Reciprocating angle	7 ~ ±3600 deg
Rotation speed	1 ~ 1200 deg/sec
Positioning accuracy	0.05 deg
Permissible torque	6.5 Nm (4.8 ft lb)
Permissible Moment of Inertia	2.0 x 10 <sup>-3</sup> kg/m <sup>2</sup>
Output Shaft Static Rated Moment	1.5 Nm
Counter	8 digit display
Installation Temp range	+5 to +40°C (+41 to +104°F)
Installation Humidity	15 - 85% RH (no condensation)
Weight	about 20 kg (44.1 lb)
Dimensions (mm)	500mm x 300mm x 288mm (WDH)
Dimensions (inches)	19.69" x 11.8" x 11.3" (WDH)
<b>Attached units with Cover</b>	
System Model Number	
Weight	about 33 kg (72.75 lb)
Dimensions (mm)	925mm x 459mm x 312mm
Dimensions (inches)	36.4" x 18.1" x 12.3" (WDH)



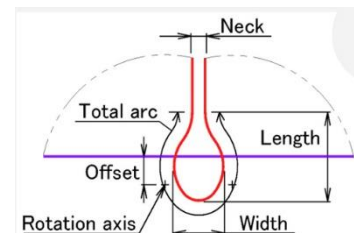
The CS-Teardrop shape is very similar to an actual tear



U-shape folding without full vertical support becomes a teardrop shape



The CS-Teardrop shape during flexing



Parameters for adjusting CS-Teardrop shape

## US SERVICES AVAILABLE

- Online training
- Technical support
- Installation & set-up
- Maintenance
- Guaranteed Warranty

For further information:  
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[www.yuasa-system.jp/en](http://www.yuasa-system.jp/en)

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