

5

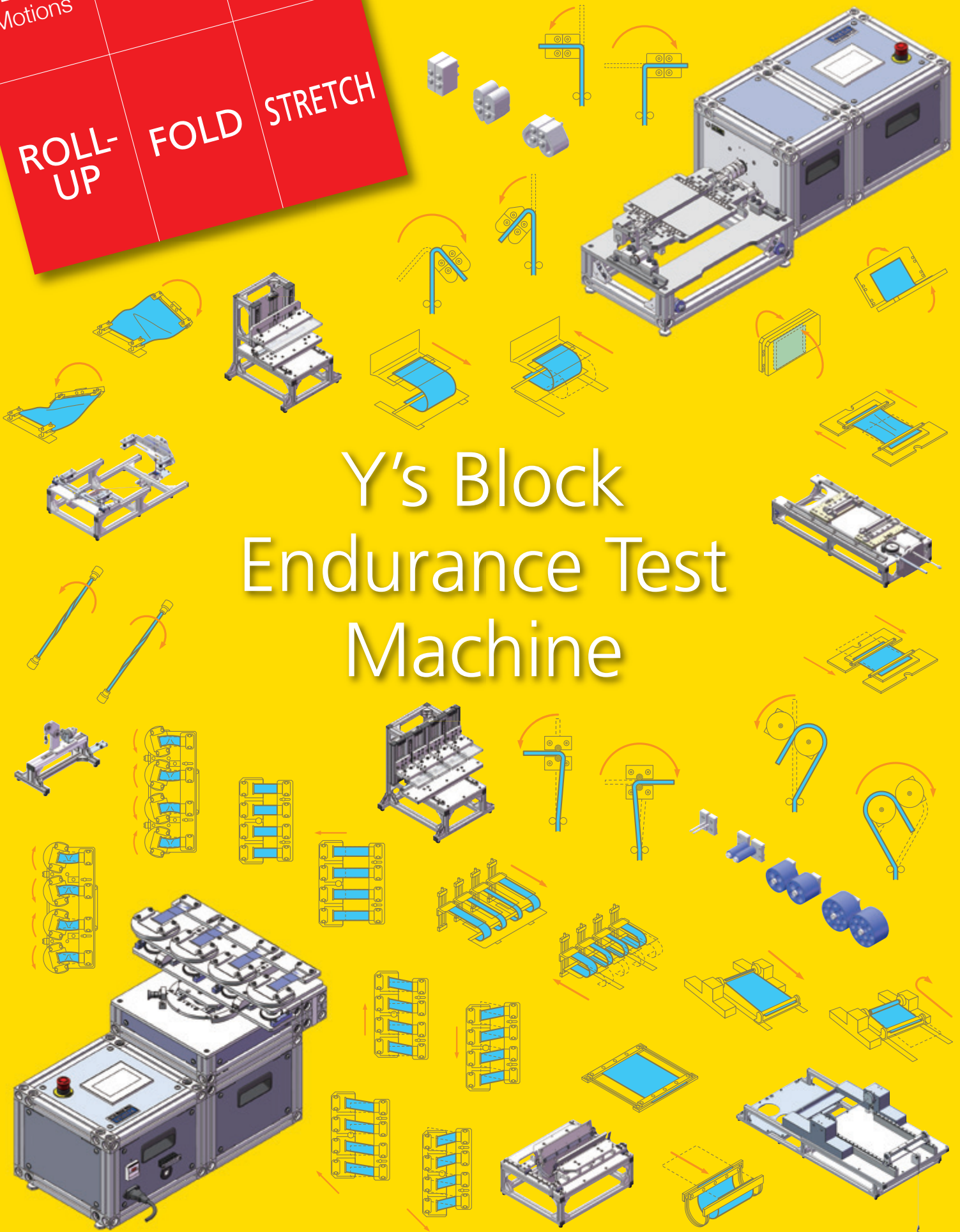
Basic  
Motions

BEND TWIST

ROLL-  
UP

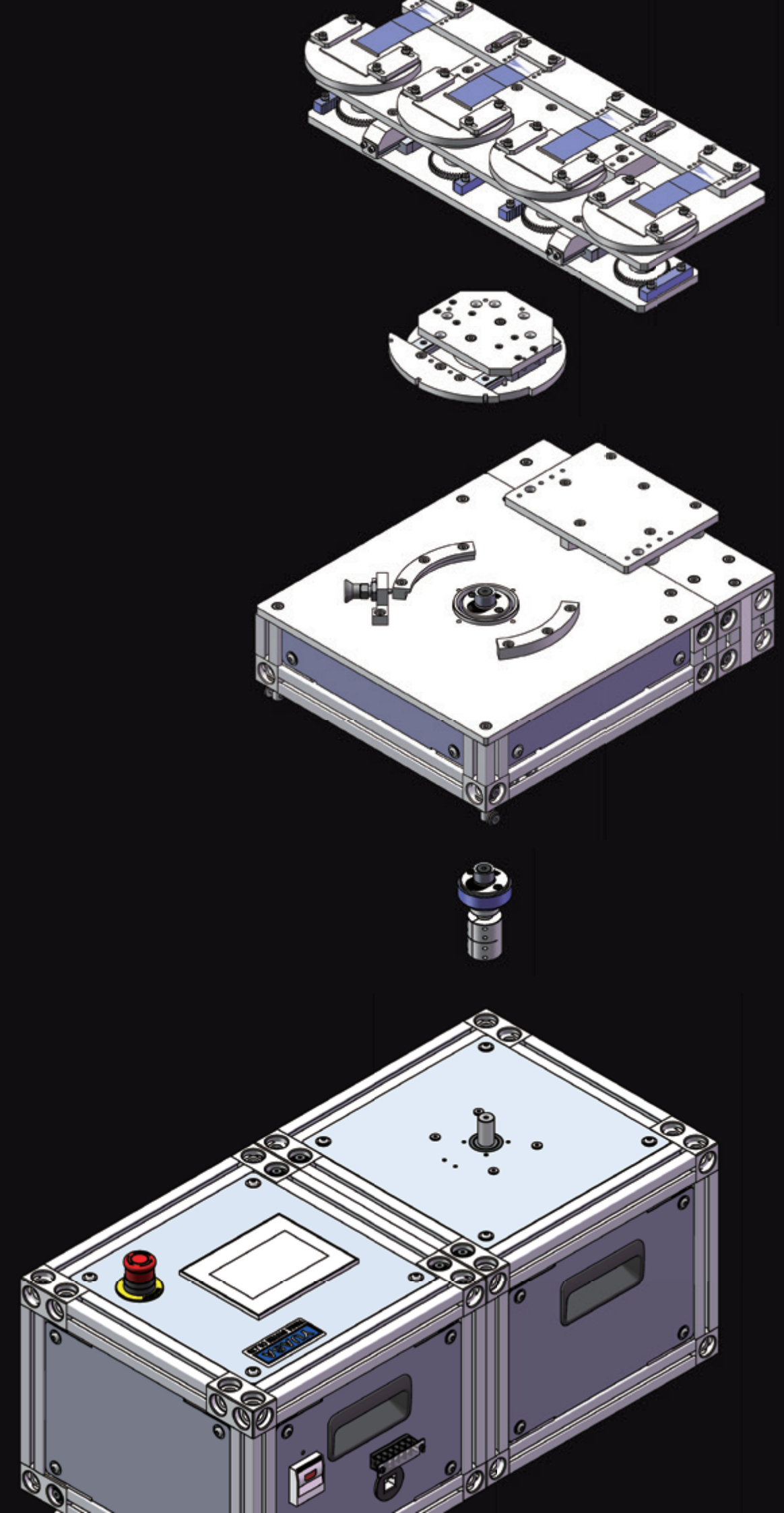
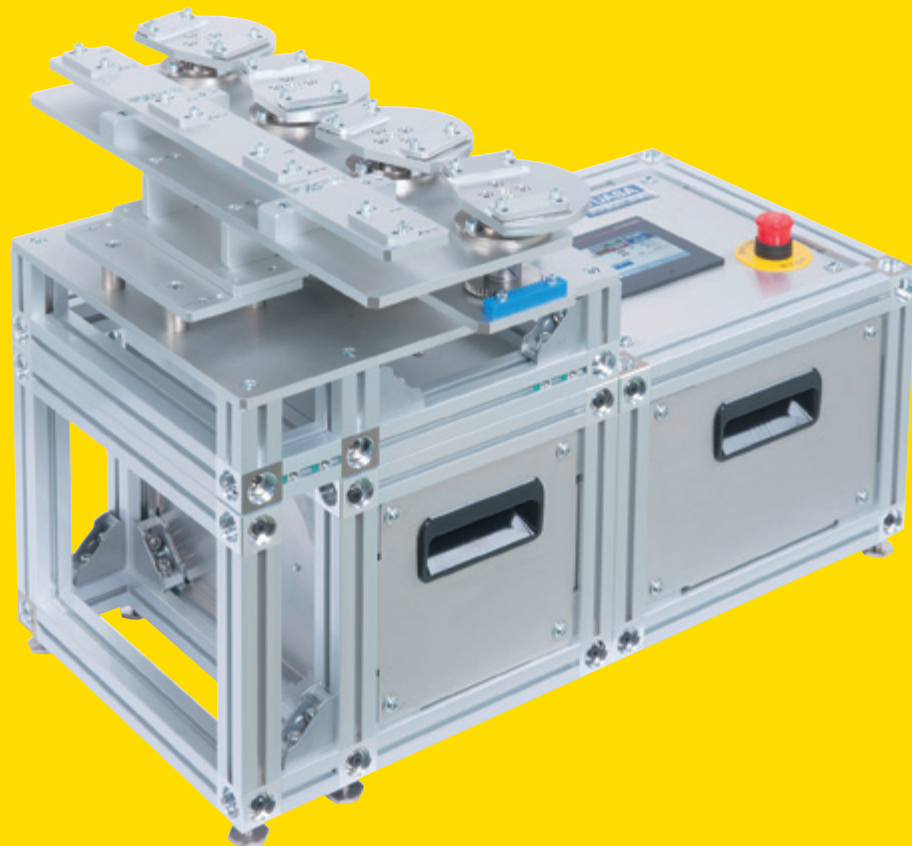
FOLD STRETCH

# Y's Block Endurance Test Machine



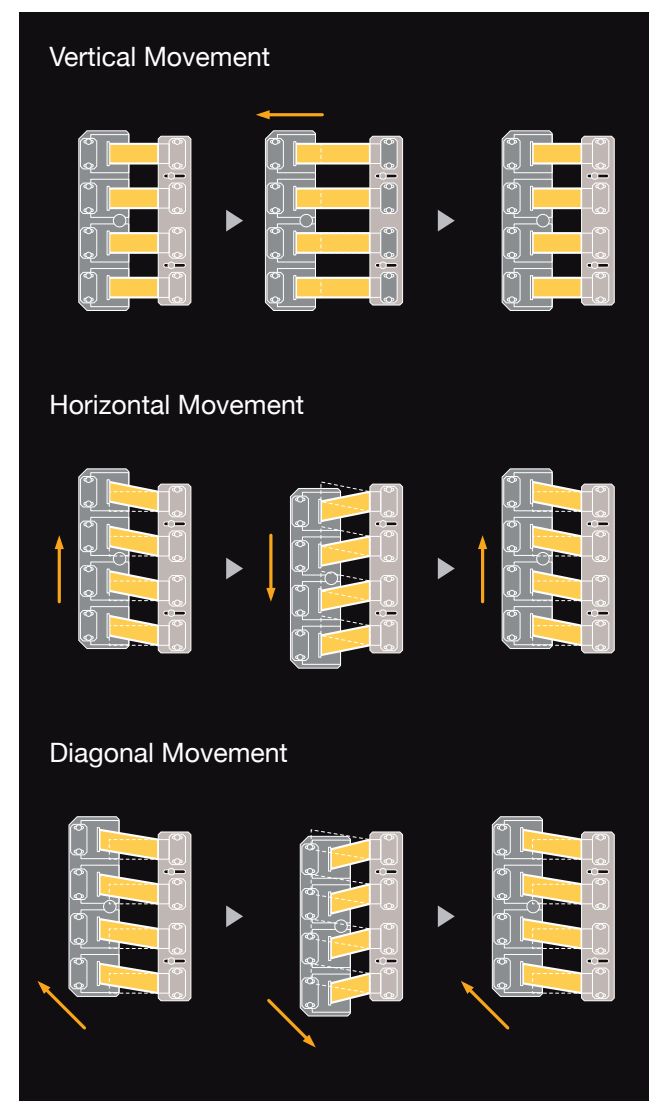
# Various Endurance tests with various motion-jigs

## **Y's Block Endurance Test Machine**

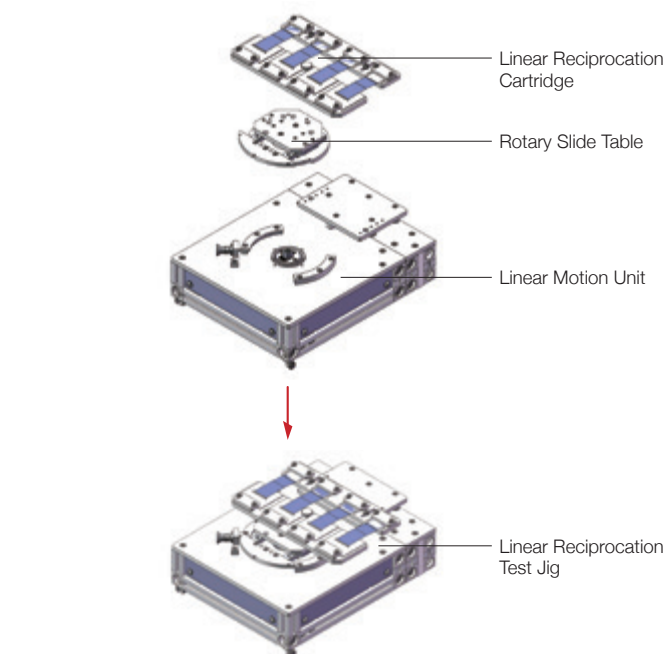




## Jig Movement

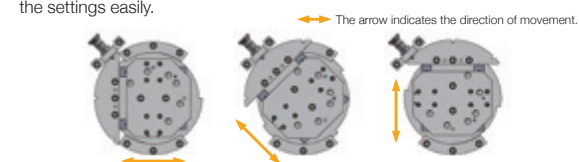


## Attachment (Test Jig)



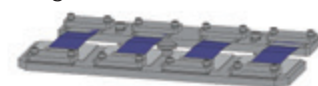
## Rotary Slide Table

The direction of movement can be changed by rotating the angle according to the direction of movement.  
The rotary slide table is fixed with pins (index plunger), so you can change the settings easily.



## Linear Reciprocation Cartridge

This jig that repeatedly performs linear reciprocating motion to attached samples such as FPC board.



## Multi-directional (standard 3 directions) operation with one jig.

Vertical, Horizontal, and diagonal movement test is possible with one linear reciprocation cartridge.

\* The movement in other directions can be set by customization.

## Set accurate reciprocation distance with cam mechanism.

Accurate stroke is provided by exchanging the plate in the driving flange according to the reciprocating distance.

\* Linear distance:  $\pm 1 - 10$  mm (can be set in increments  $\pm 1$  mm)

## Test time saving by test four samples simultaneously.

It is possible to shorten the test time by test not only single samples but also different types of samples simultaneously using four lanes freely.

\* Installable sample size

Sample thickness: max. 5 mm Sample width: max. 30 mm (clamping part: max. 60 mm) Sample length: min. 25 to max. 100 mm

MODELS



You can download the specification.

## STRETCH



## Example of Test Pieces



Flexible Devices Products



Thin Film Materials



Flexible Devices



Flexible Printed Circuits



Flat Wearable Products



Wearable Products



Pressure Sensor



IC tag



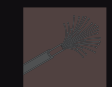
Wire Harness



Flexible Panels



Electric Cables



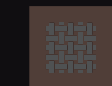
Optical fiber Cables



Fine Cables



Home Appliance Cables



Fibers (Planar)



Fibers (Linear)

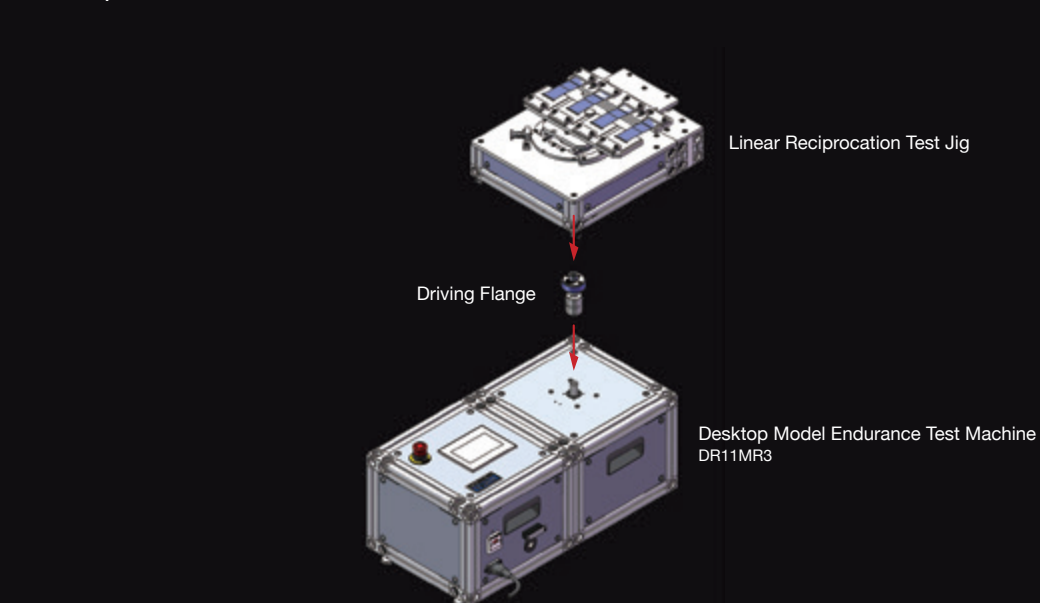


Connectors

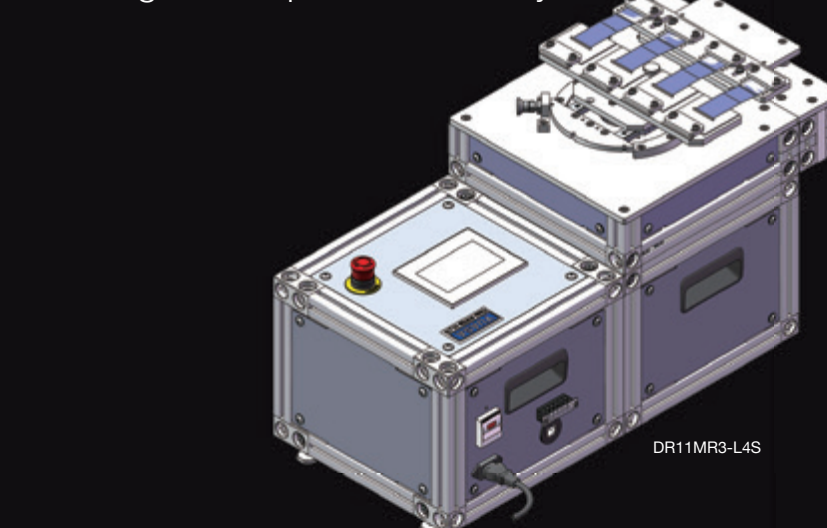


Gears

## Composition



## Drawing of Completed Assembly



If you have any question, please ask us.

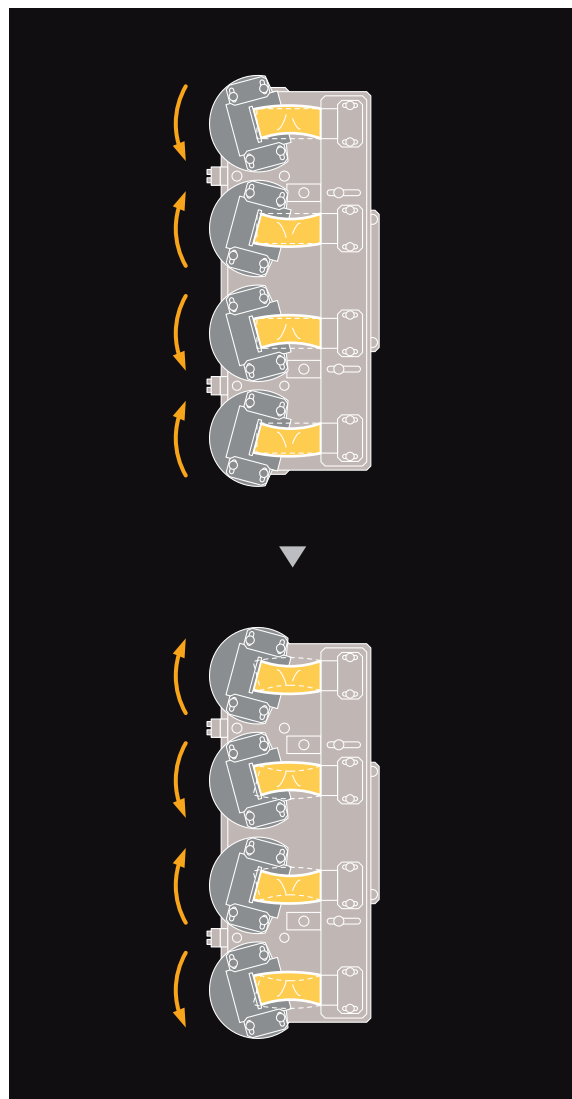
Y's Block

DR11MR3-R4S

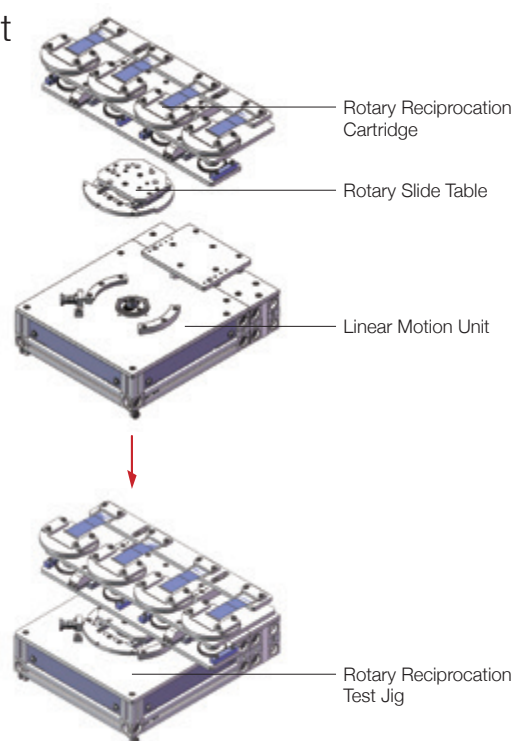
Desktop Model Endurance Test Machine

Rotation Reciprocation Test

Jig Movement



Attachment  
(Test Jig)



Rotary Reciprocation Cartridge

This jig that repeatedly performs rotation reciprocating motion to attached samples such as FPC board.

This jig can perform a test that applies a load in the rotational direction, which is not possible with a linear reciprocating cartridge.



Accurate reciprocation distance can be set with cam mechanism.

Accurate stroke is provided by exchanging the plate in the driving flange according to the reciprocating distance.

\* Linear distance:  $\pm 1 - 10^\circ$  (can be set in increments  $\pm 1^\circ$ )

Test time saving by test four samples simultaneously.

It is possible to shorten the test time by test not only single samples but also different types of samples simultaneously using 4 lanes freely.

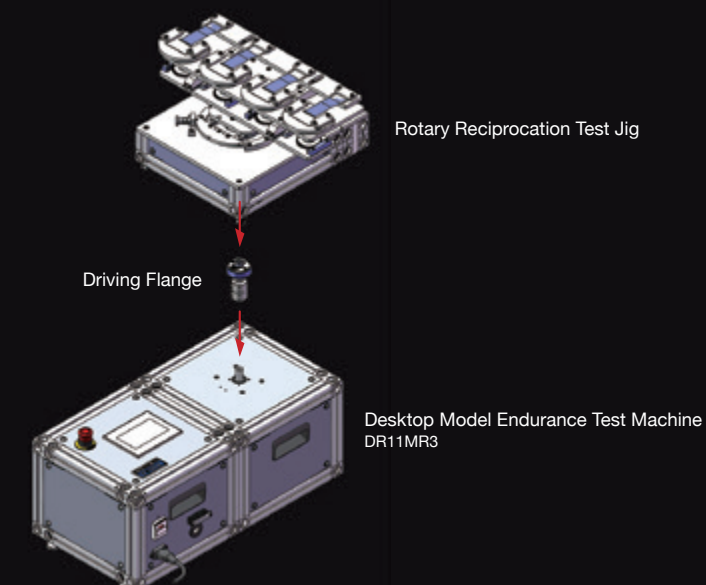
\* Installable sample size  
Sample thickness: max. 5 mm    Sample width: max. 30 mm (clamping part: max. 60 mm)    Sample length: min. 25 to max. 100 mm

MODELS

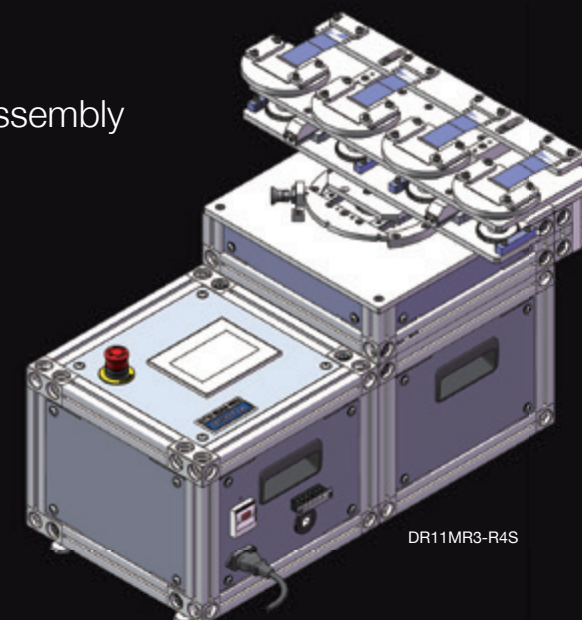


You can download the specification.

Composition



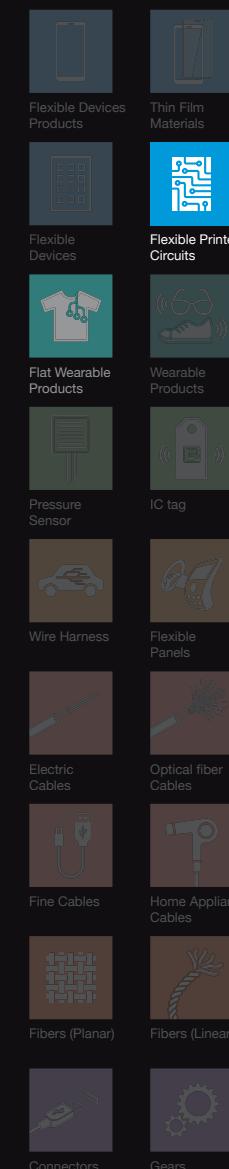
Drawing of  
Completed Assembly



STRETCH



Example of  
Test Pieces



If you have any question, please ask us.



Y's Block

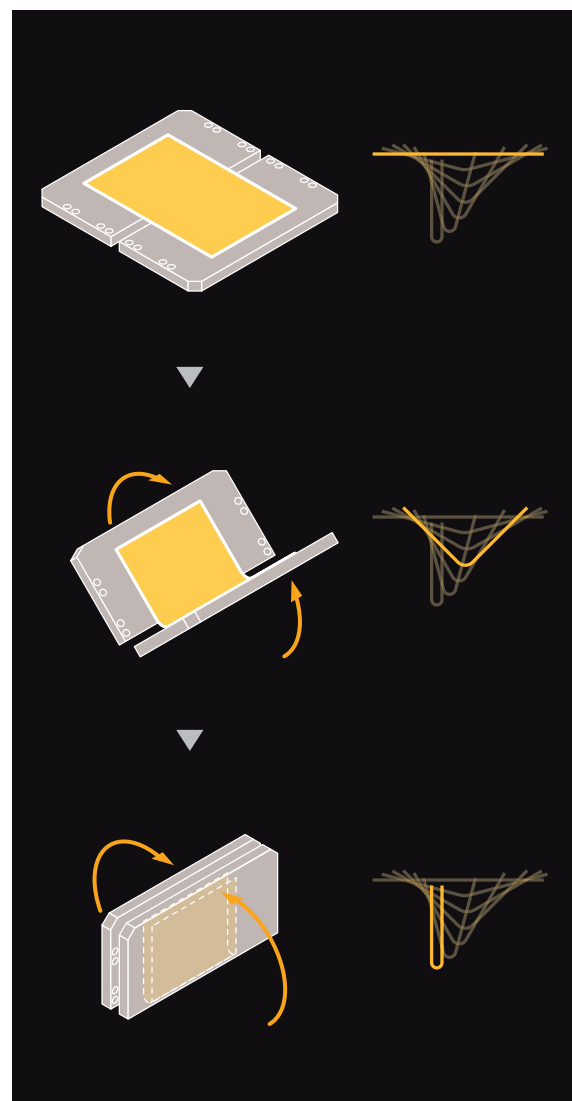
DR11MR-CS / CS-t / CS-m

Desktop Model Endurance Test Machine

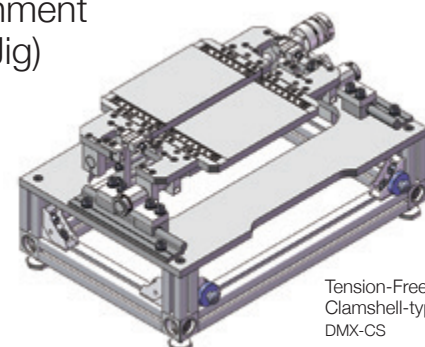
Tension-Free™ Folding Clamshell-type

Tension Free™

## Jig Movement



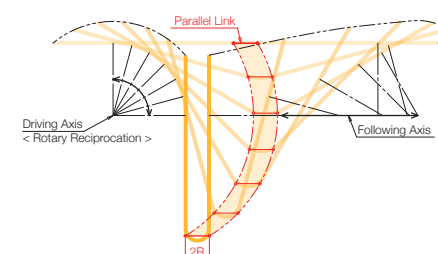
## Attachment (Test Jig)



Tension-Free™ Folding Clamshell-type Jig DMX-CS

This test jig can realize the tiny bending radius test without tensile stress because test sample is kept by the 2 plates of double-joint clamshell.

## Sample-deformation process



Two plates keep the test sample, and then one plate operates by Rotary Reciprocation Axis. This two plates move open and close keeping each angle by the parallel link structure.

## Deformation process focused on test sample shape



This test jig doesn't make the tensile stress occur to the test sample because rotary point at the edge of plate. If the rotary point is different position, the tensile stress or compression stress will occur to the test sample.

## Removable cartridge

The sample attaching part is a removable cartridge, so the sample can be attached easily.

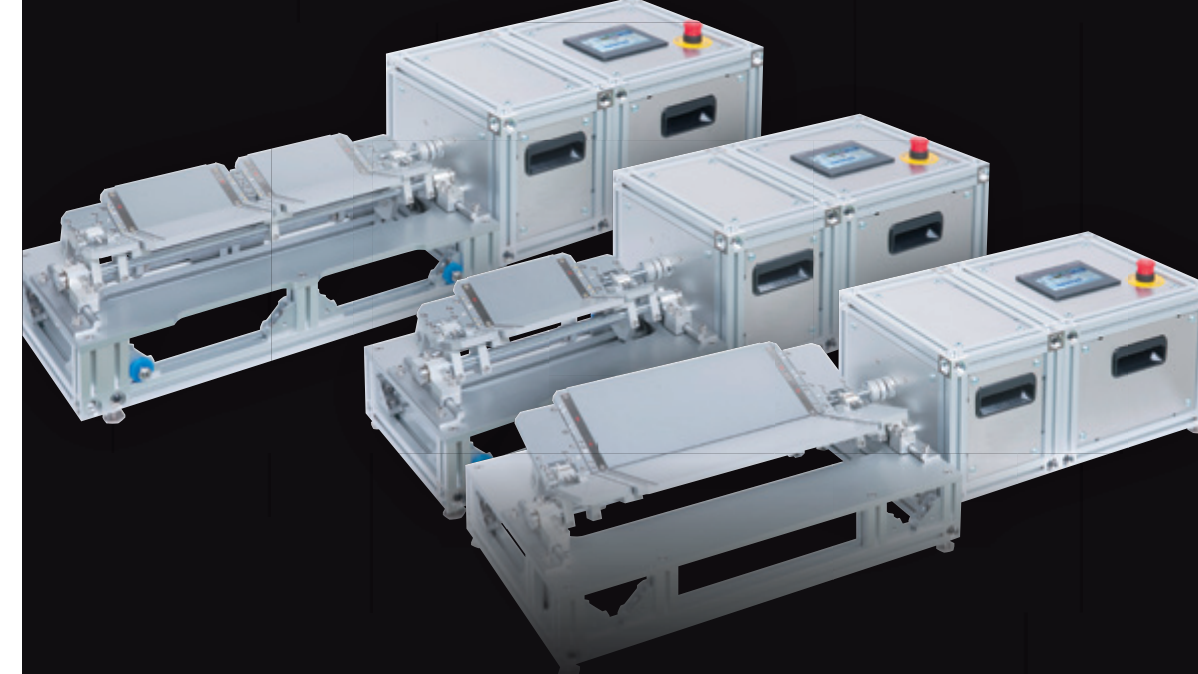
Three types of jigs support simultaneous testing and various sample sizes.

In addition to the standard CS jig, the twin type CS-t and the large type CS-m are available, enabling simultaneous testing of multiple samples and large samples.

MODELS



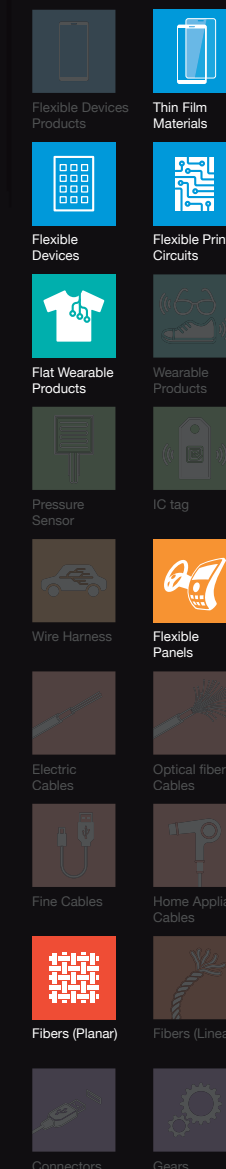
You can download the specification.



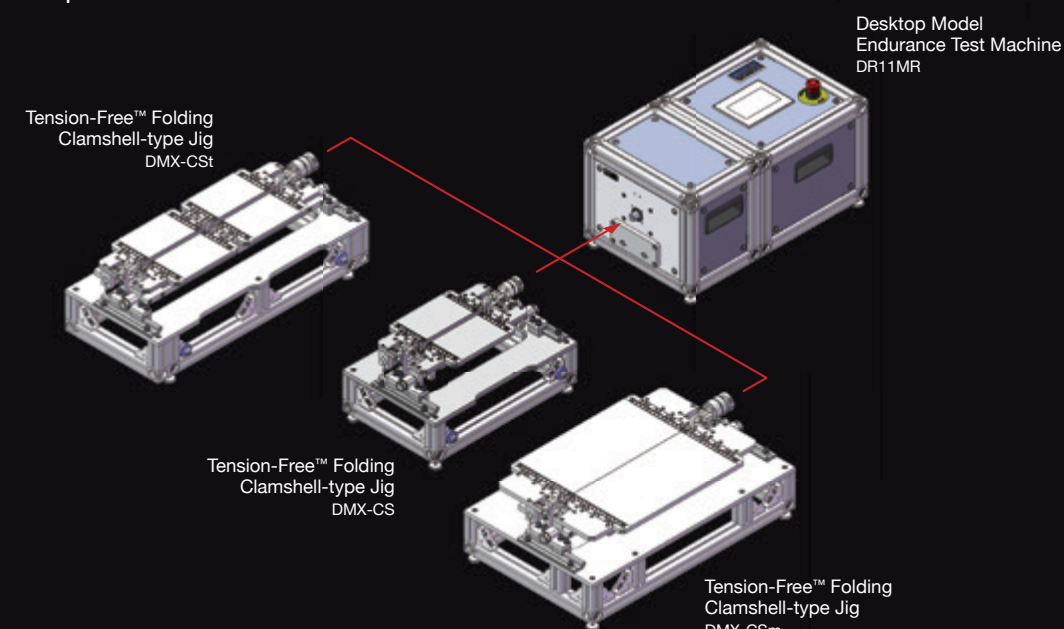
FOLD



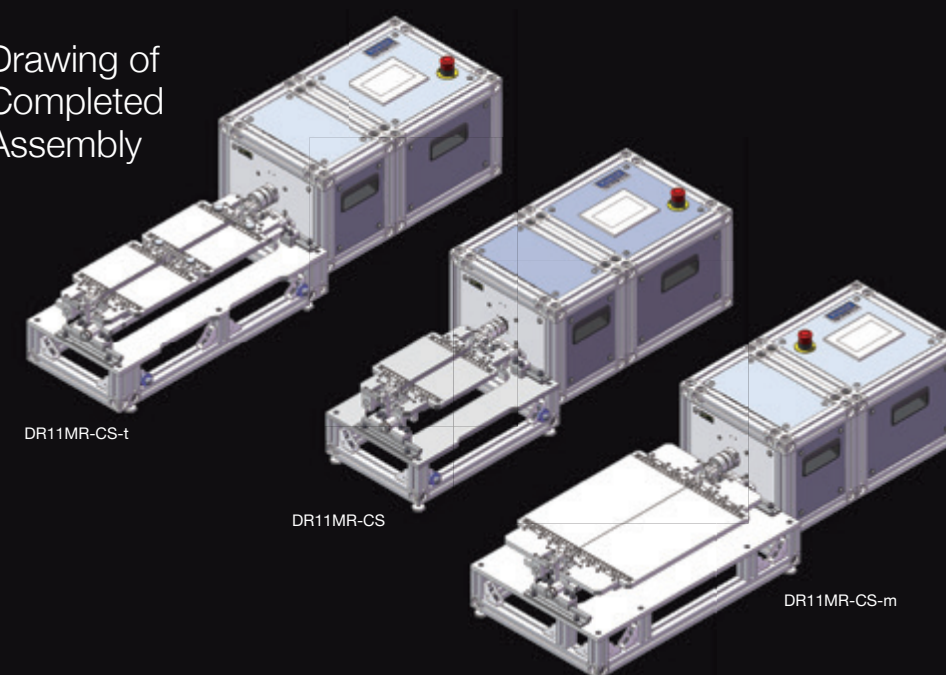
## Example of Test Pieces



## Composition



## Drawing of Completed Assembly



# Endurance Testing Systems Support Package

Image ✕ **Y's Block** ✕ Measuring

→ Analysis the sample deformation

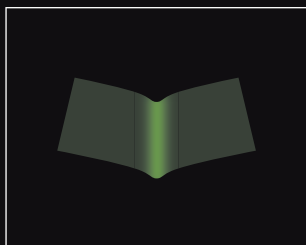


Image

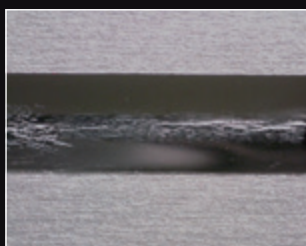
Edge Strain Analysis



Mechanoluminescence

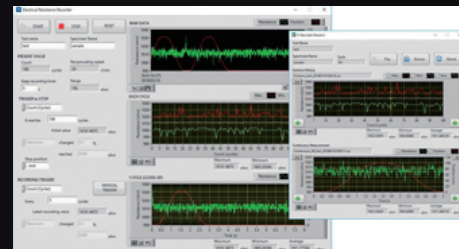


Failure detection

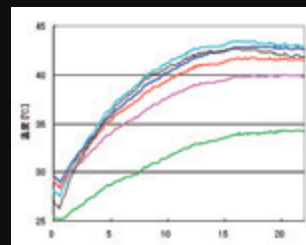


Measuring

Conductor resistance

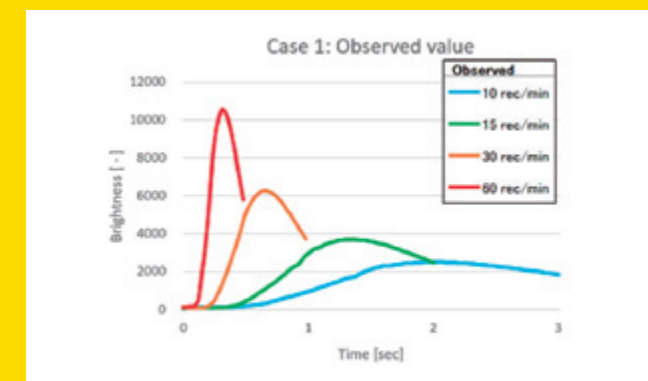


Temperature

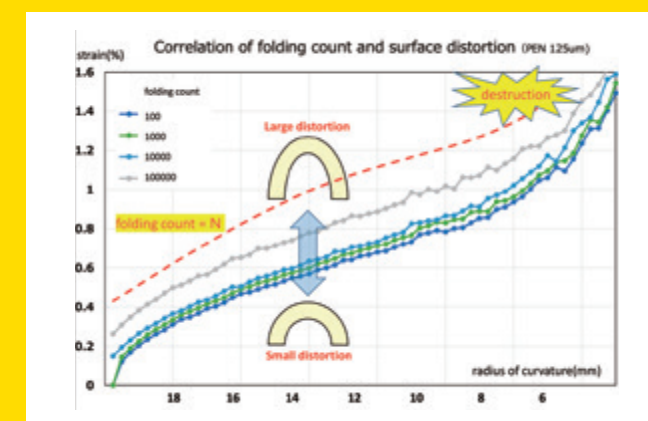


Analysis

Visualization



Failure prediction



Failure sign



Y's Block

DR11MR-CS-cam-ESA

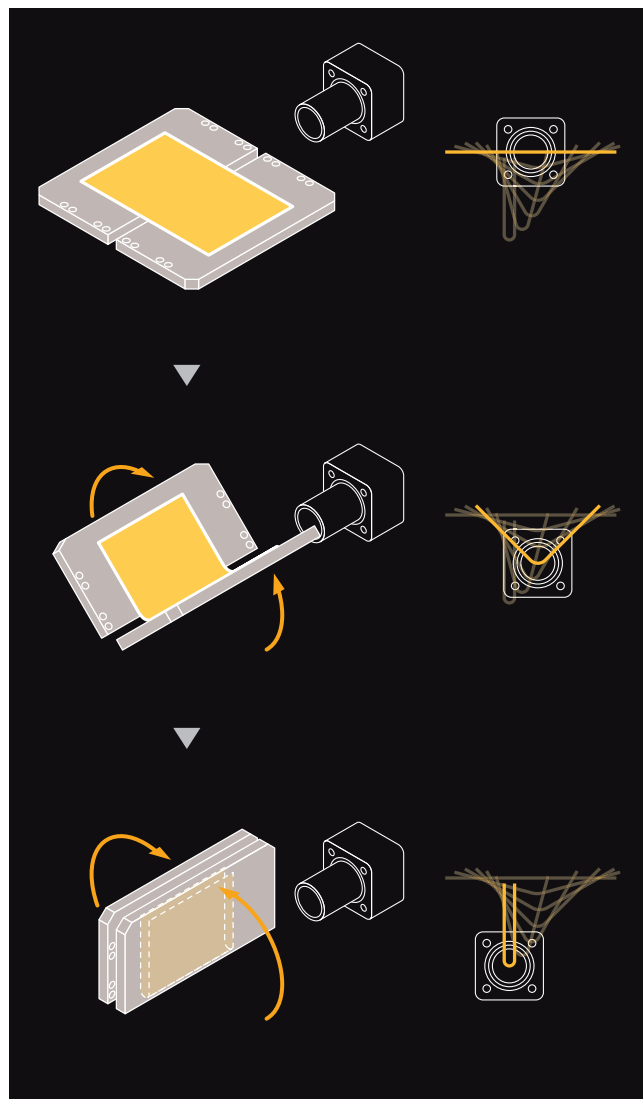
Start selling from next spring

Tension Free™

Edge Strain Analysis with Mechanical Endurance Test

Tension-Free™ Folding Clamshell-type

Jig Movement



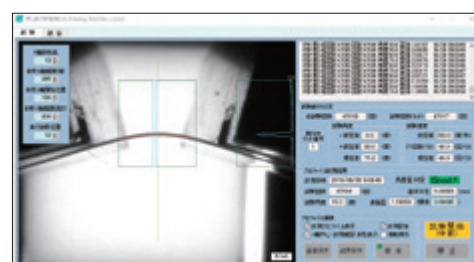
Attachment (Test Jig)



The camera follows movement of test sample by the control structure of camera position. That gives steady image of test sample to evaluate mechanical deformation.

Edge Strain Analysis during deformation using side-view  
Failure prediction by deformation profiling

Image processing system developed by Shishido Lab. @TITECH tells precise edge strain on specimen while deformation occurred, by using specific optics. It can predict the failure by deformation profiling.

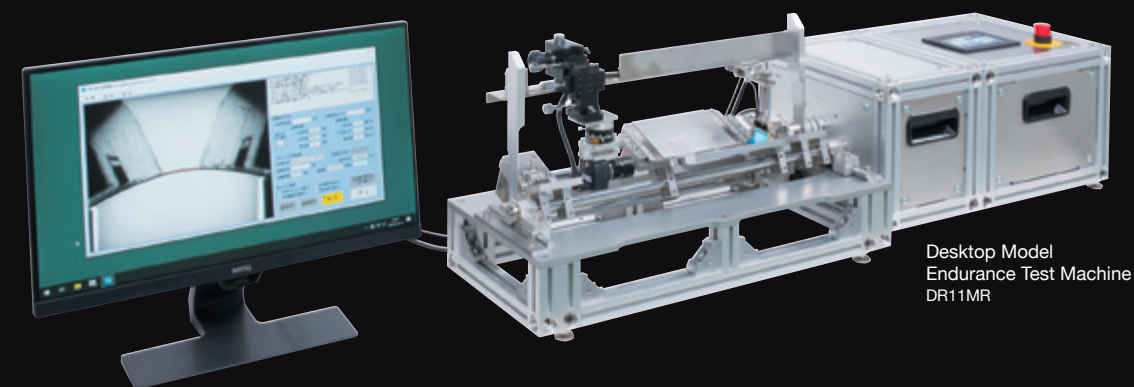


MODELS



You can download the specification.

Composition

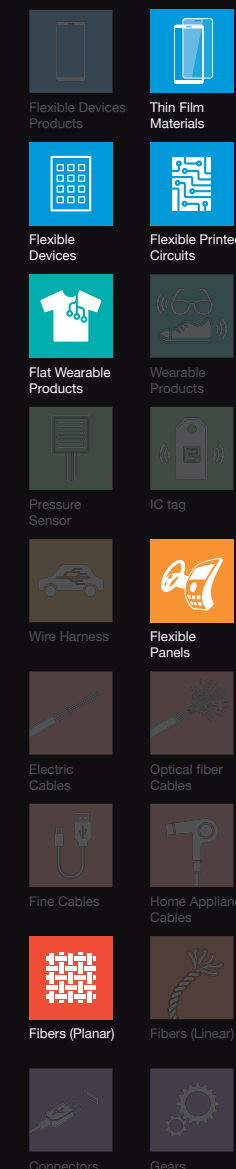


Desktop Model  
Endurance Test Machine  
DR11MR

FOLD

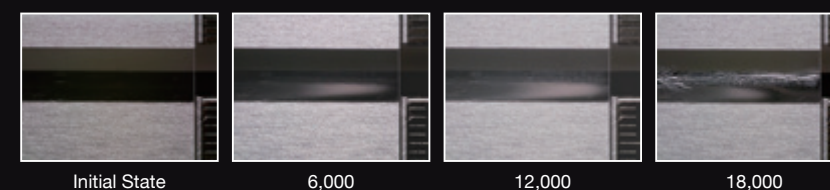
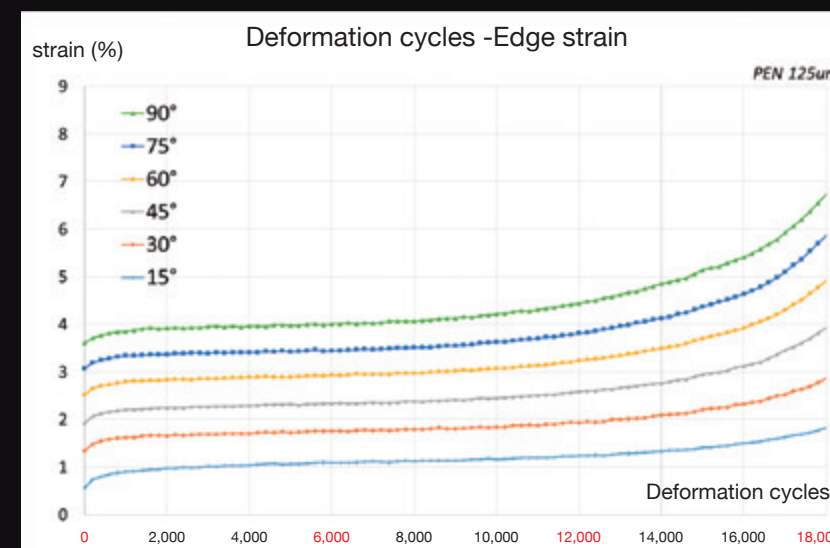
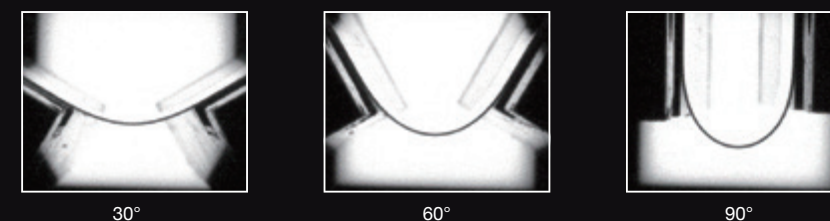


Example of  
Test Pieces



Examples

This system calculation the surface strain by side-view and sample thickness at the folding.



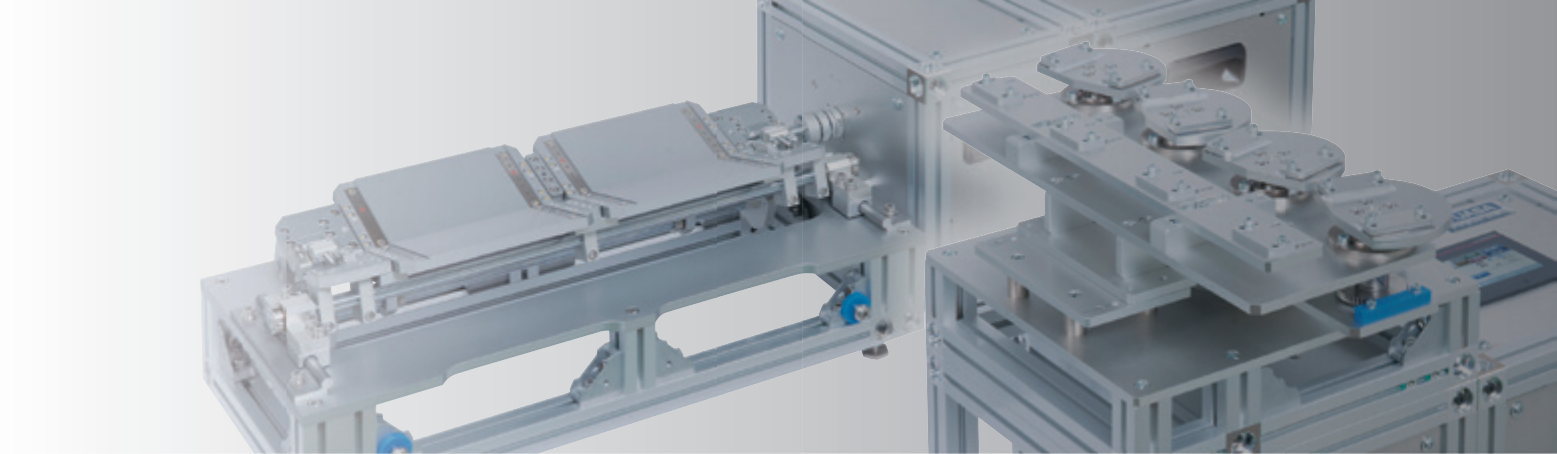
# Specification of Base Unit

Y's Block

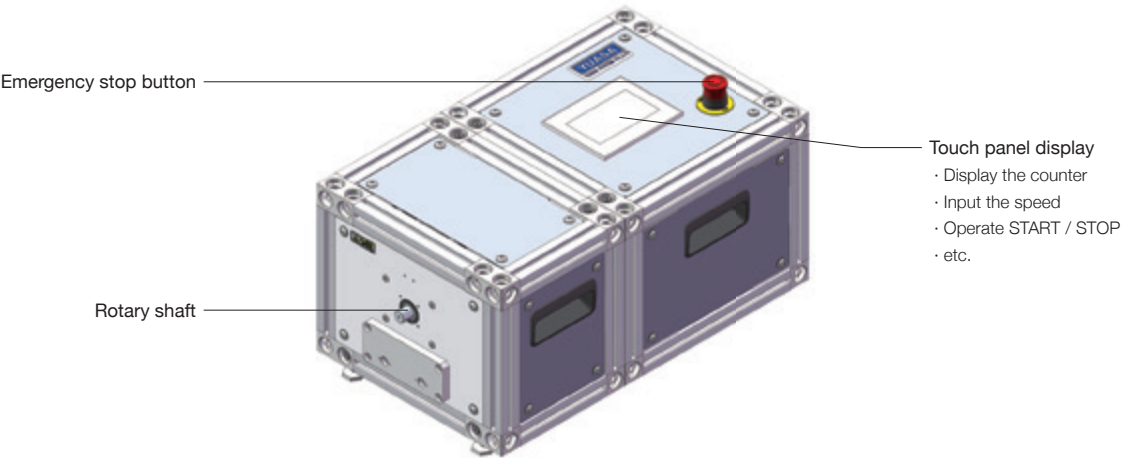
DR11MR (Horizontal axis Type) / DR11MR3 (Vertical axis Type)

Desktop Model Endurance Test Machine

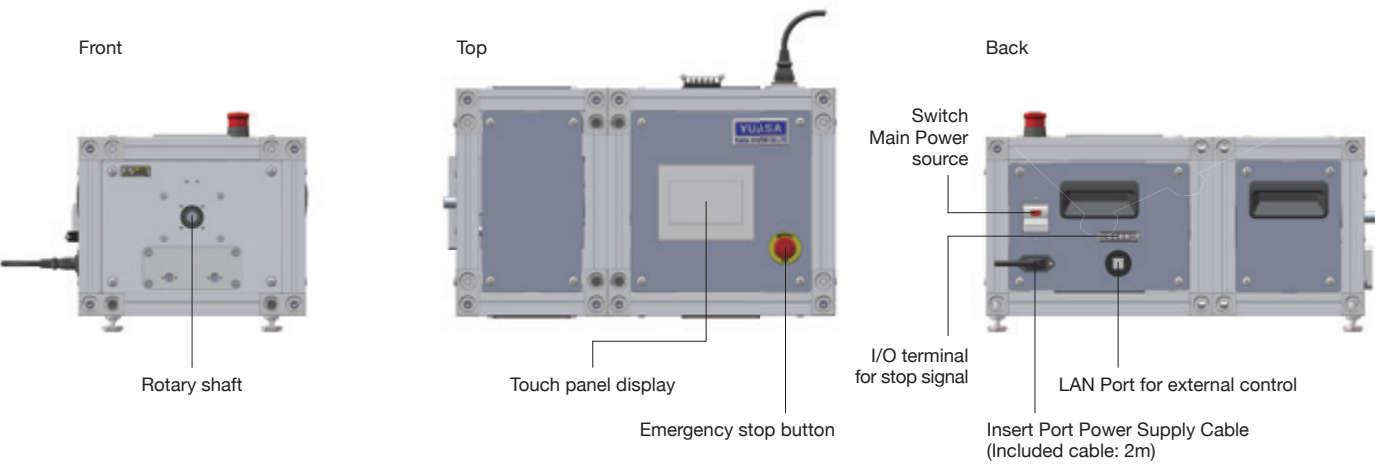
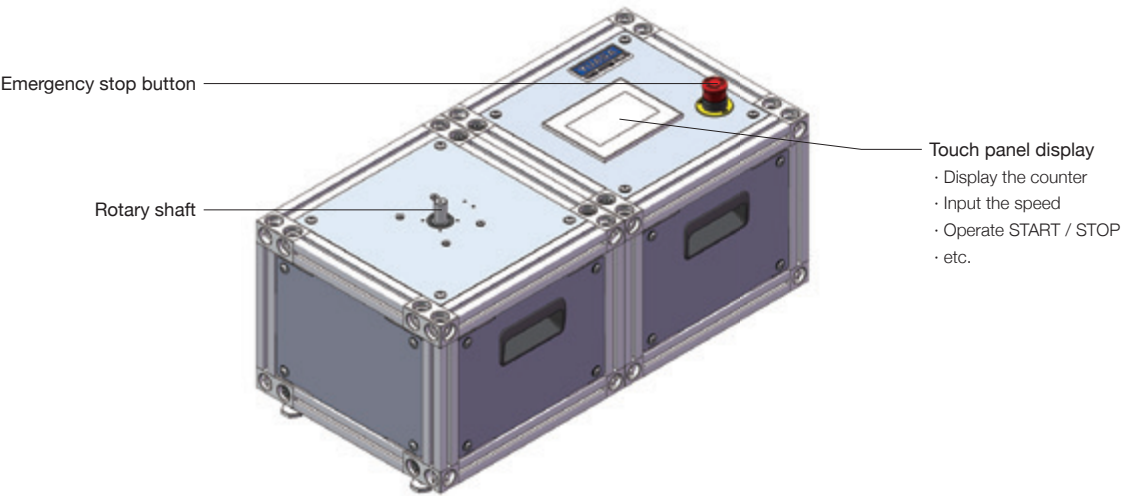
Those are driving unit for endurance test machine which operate repeatedly under presetting test condition. Two type unit can be chosen for the test purpose.



DR11MR (Horizontal axis Type)  
It is possible to set a variety of test conditions, and it can operate freely any position.



DR11MR3 (Vertical axis Type)  
This unit is suit for long-time repeating test.



60rpm is achieved with clamshell-type(p. 07).  
The increased permissible torque enables operation at 60 rpm, which was not possible with our conventional small desktop endurance test machine.

Various test condition  
It is possible to operate freely within 10 rotations both side( $\pm 3600^\circ$ ).  
One-way continuous rotation is possible by switching modes.

Fully automatic testing  
A disconnection detector and preset counter are standard equipment.

## Basic Specifications

	DR11MR	DR11MR3
Electric Power	AC100-240V (50/60 Hz) 100VA	
Motor Unit	Stepping motor [DC48V, 3.55A (max. ), 100W, Gear box 1/15]	
Angle	Rotary Reciprocation Mode: $\pm 7 - \pm 3600$ deg. / Continuous rotation Mode: One-way rotation	
Rotary Speed	1 - 1200 deg / sec	
Permissible Torque / Output	6.5 N-m	
Permissible Moment of inertia	$2.0 \times 10^{-3}$ kg/m <sup>2</sup>	
Output Shaft Static Rated Moment	1.5 N-m	
Counter	8-digits display (Can set the target number)	
Installation Environment	Temp. : +5 - 40°C / Humi. : 15 - 85%Rh (No Condensation)	
Safety Interlock	Safety cover for the testing jig: Converted or Not	
Dimension (Excluding projection)	W 500 mm × D 300 mm × H 255 mm	W 600 mm × D 300 mm × H 255 mm
Weight	20kg	21kg

Web

Please check the latest specification on the web.

<https://www.yuasa-system.jp/en>

MODELS

You can download the specification. If you have any question, please ask us.



# Further Improve Reliability

## YUASA SYSTEM ENDURANCE TEST SYSTEM



**Bending**



**Torsion**



**Folding**



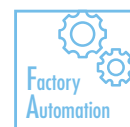
**Rolling**



**Tension**



**YUASA SYSTEM CO., LTD.**



## YUASA SYSTEM CO., LTD.

Our product information is also available on  
<https://www.yuasa-system.jp/en>



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**Safety Note** To ensure your safe and proper usage, please observe all the manuals before using these machines.