FORCE MEASUREMENT
IMADA

Additional chargeable functions*1,2 for Force Recorder Next Series

Plug-in designed to enhance

the quality of professional measurement and analysis

- **Friction Testing Module**
- **Peel Testing Module 1**
- **Pressure/Stretchability Measurement Module**
- **Switch Operating Force Testing Module**

*Please refer to the specifications for details concerning the Force Recorder Next series.

*1 IMADA Connected introduces other supplementary functions (or features) for the Force Recorder Next series.
For the latest lineup, please visit IMADA Connected.

*2 For the additional Force Recorder Next Series supplementary functions downloads listed below, the purchase of the download card(s) required.
Force Recorder Next series updates may be required for installing

COF

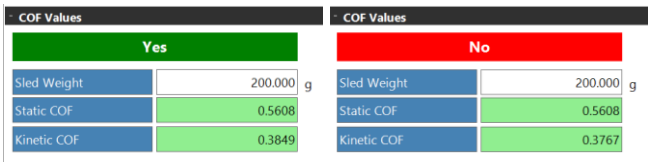
Friction Testing Module

Automatically calculates Coefficient of Friction from measured values and supports compliance with relevant standards for friction tests

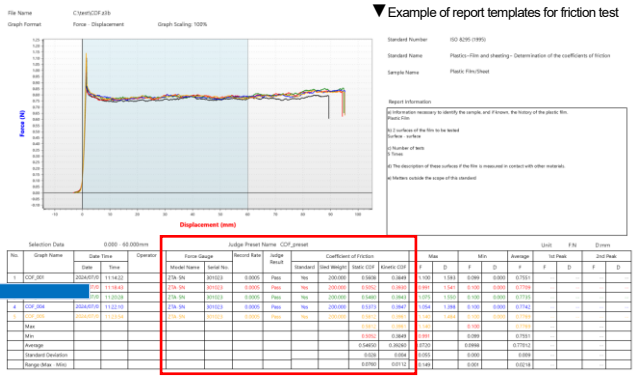
Feature 1

Automatic calculation of Friction Coefficient, Standard Compliance / Conformity, Pass/Fail Judgment of measurement results

Automatically calculates and displays the coefficient of static friction and average dynamic friction coefficient from measurement results by presetting the weight of the weights and the calculation section. It also displays the conformity judgment against the standard of the selected graph.



■ Measurement data can be easily output using dedicated report templates, csv, etc.



Judge Preset Name COF_preset

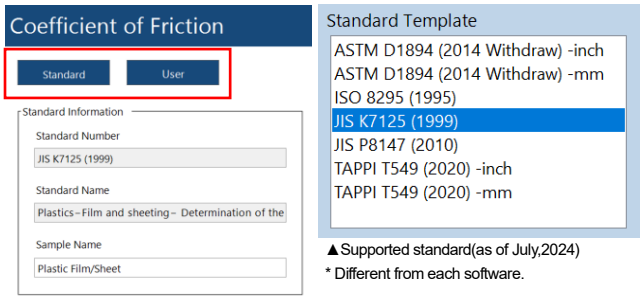
Force Gauge		Record Rate	Judge Result	Coefficient of Friction			
Model Name	Serial No.			Standard	Sled Weight	Static COF	Kinetic COF
ZTA-5N	301023	0.0005	Pass	Yes	200.000	0.5608	0.3849
ZTA-5N	301023	0.0005	Pass	Yes	200.000	0.5052	0.3930
ZTA-5N	301023	0.0005	Pass	Yes	200.000	0.5480	0.3943
ZTA-5N	301023	0.0005	Pass	Yes	200.000	0.5373	0.3947
ZTA-5N	301023	0.0005	Pass	Yes	200.000	0.5812	0.3961
						0.5812	0.3961
						0.5052	0.3849
						0.54650	0.39260
						0.028	0.004
						0.0760	0.0112

Enlarge

Feature 2

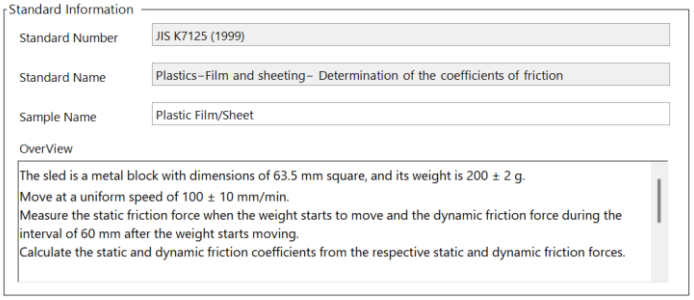
Supported Measurements complying with friction test-related standards

■ Measurement conditions comply with JIS and other standards related to friction testing are preinstalled for the efficiency in setting up according to the standards. In addition, the user preset function can save any user-made measurement conditions.

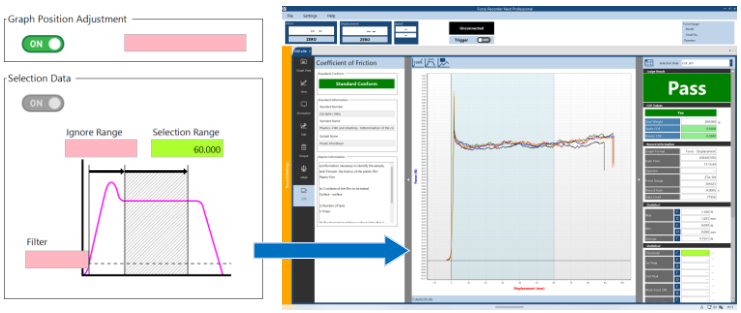


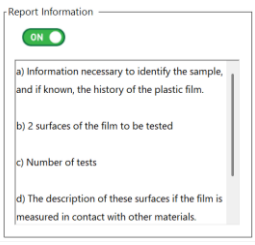
▲Supported standard(as of July,2024)
* Different from each software.

■ Supports measurement setup with the standard with descriptions



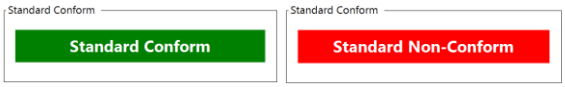
■ The Select data required for kinetic friction calculation set automatically, according to the standards.





■ Easy report creation thanks to preinstalled report setting required for relevant standards

■ Compliance with standards for each graph as well as overall measurement data. The judgment result is also displayed.



Peel

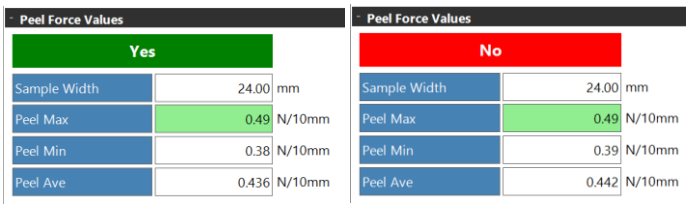
Peel Testing Module 1

Automatic conversion of measurement results to peel force units and the measurement standards compliance support

Feature 1

Automatic conversion of peel force units, standard compliance/conformity, pass/fail judgments of measurement results

■ The measurement results are automatically converted and displayed in the set peel force unit (N/10mm, etc.) by advanced setting conditions such as sample width, conversion unit, and calculation interval. It also displays the judgment result conformity for the selected standard.



■ Measurement data can be easily output using dedicated report templates, csv, etc.

▼Example of report templates for peel test

Enlarge

▼Output of Peel test measurement data

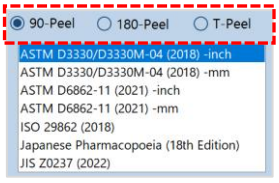
Judge Preset Name Peel

Force Gauge		Record Rate	Judge Result	Peel (N/10mm)				
Model Name	Serial No.			Standard	Sample Width	Peel Max	Peel Min	Peel Ave
ZTA-50N	311298	0.0005	Pass	No	24.00	0.49	0.39	0.442
ZTA-50N	311298	0.0005	Pass	No	24.00	0.48	0.38	0.433
ZTA-50N	311298	0.0005	Pass	No	24.00	0.45	0.36	0.402
						0.49	0.39	0.442
						0.45	0.36	0.402
						0.473	0.377	0.426
						0.021	0.015	0.021
						0.04	0.03	0.04

Feature 2

Supports peel test compliance with relevant standards

■ Same as in the Friction Testing Module, possible to additionally preset and register the various measurement conditions.



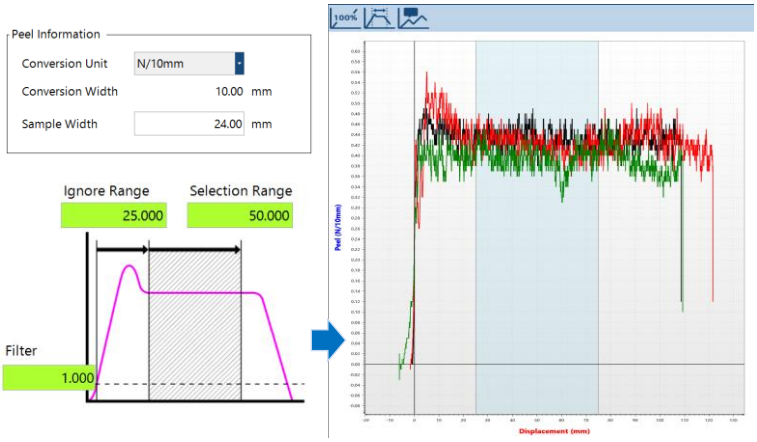
◂Packaging industry standards for the three test methods with 90/180 degrees, and the T-shape tests are preset and registered as measurement conditions.

▼Supported standard(as of November2024)

Peel test supported standards	90°	180°	T-Peel
ASTM D3330/D3330M-04 (2018)	✓	✓	–
ASTM D6862-11 (2021)	✓	–	–
ISO 29862 (2018)	✓	✓	–
Japanese Pharmacopoeia (18th Edition)	✓	✓	–
JIS Z0237 (2022)	✓	✓	–
ASTM F88/F88M-23 (2023)	–	✓	✓
ASTM D1876-08 (2023)	–	–	✓
ISO 11339 (2022)	–	–	✓
JIS K6854-3 (1999)	–	–	✓
JIS Z0238 (1998)	–	–	✓
JIS Z1707 (2019)	–	–	✓
BS EN 868-5:2018	–	–	✓

* Different from each software.

■ The peel test version of the Friction Testing Module and the corresponding standards and measurement conditions are for peel tests. The section data required to calculate the average peel force in the specified peel range is also automatically set.



■ Standard conformity of both selected graph and the entire measurement are also displayed.

P/S
PRESS./Stretch.

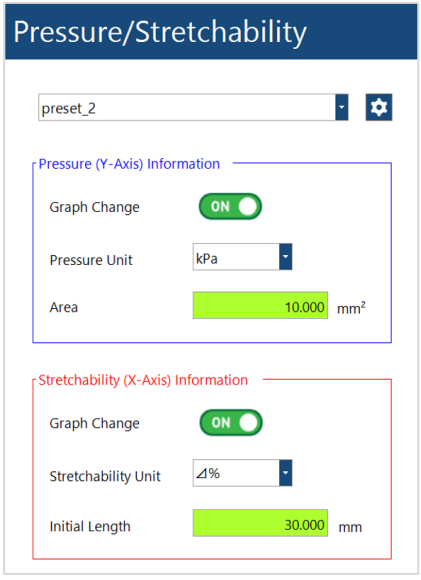
Pressure/Stretchability Measurement Module

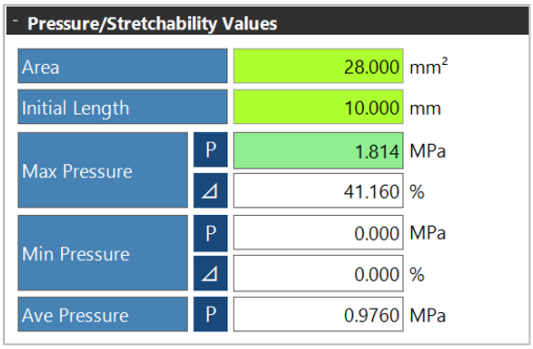
Displays Compression/Tensile measurement results in terms of Pressure and Stretchability

Feature 1

Automatic conversion of force value per area Unit and stretchability / stretchability rate, and Pass/Fail Judgment of measurement results

■ When a compression/tension test performed by setting the sample's cross-sectional area and the compression jig's area, the force value of the measurement results converted to a force value per unit area (= pressure) and displayed, in addition, the initial length/height of the sample set, and after compression/tension measurement, the stretchability/stretchability rate displayed from the displacement amount. The graph's Y-axis (pressure ⇔ force) and X-axis (stretchability ⇔ displacement) can also be switched.



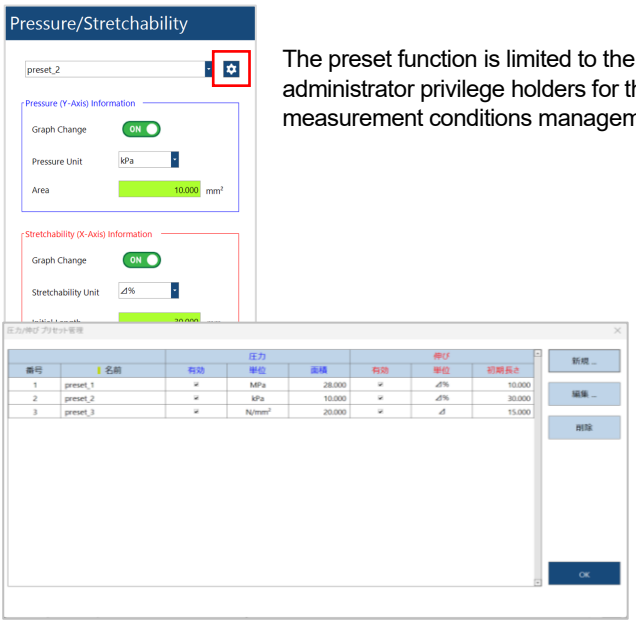


*Units for Pressure and Stretchability unable to change after recording.
*Parameters such as Young's modulus and yield point are made to order. Please contact us for details.
*Stretchability/stretchability rate conversion only supported by Force Recorder Next Professional.

Feature 2

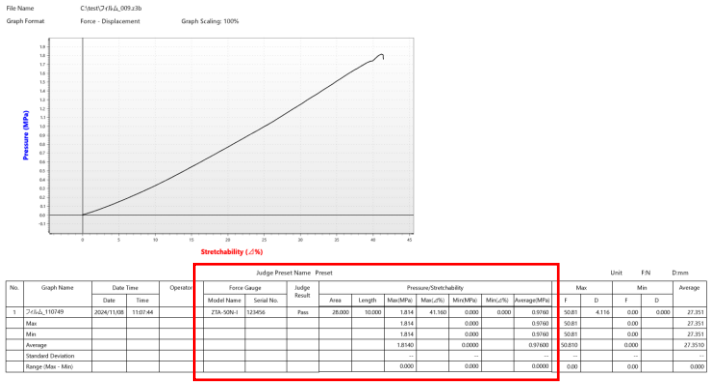
Measurement efficiency supported with measurement condition presets

■ Measurement conditions preset before starting measurement, making switching between conditions to suit the sample easier and improving measurement efficiency.



The preset function is limited to the administrator privilege holders for the measurement conditions management.

■ Measurement data can be easily output using dedicated report templates, csv, etc.



Enlarge

Judge Preset Name Preset

▼Output of Pressure/Stretchability measurement data

Force Gauge		Judge Result	Pressure/Stretchability						
Model Name	Serial No.		Area	Length	Max(MPa)	Max(⊿%)	Min(MPa)	Min(⊿%)	Average(MPa)
ZTA-50N-I	123456	Pass	28.000	10.000	1.814	41.160	0.000	0.000	0.9760
					1.814		0.000		0.9760
					1.814		0.000		0.9760
					1.8140		0.0000		0.97600
					--		--		--
					0.000		0.000		0.0000

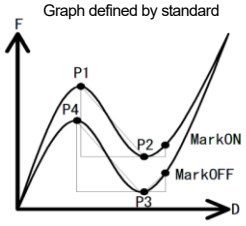
Switch Operating Force Testing Module

Supports standard compliance for calculating and measuring the tactile characteristics

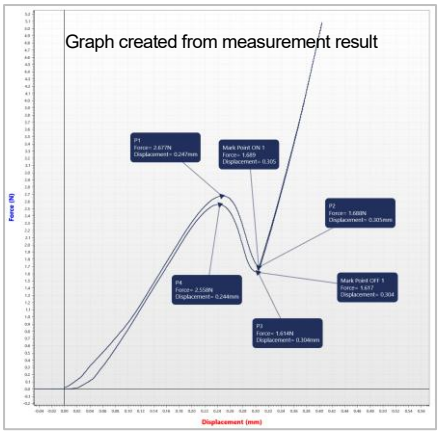
Feature 1

Automatic Calculation of Switch Operating Force Testing Module, standard compliance/conformity, pass/fail judgment of measurement results

Graph defined by standard



■ Switch characteristic parameters such as click rates automatically calculated and displayed from the switch actuation and bottom reaction force. The Selected standard compliance is displayed.



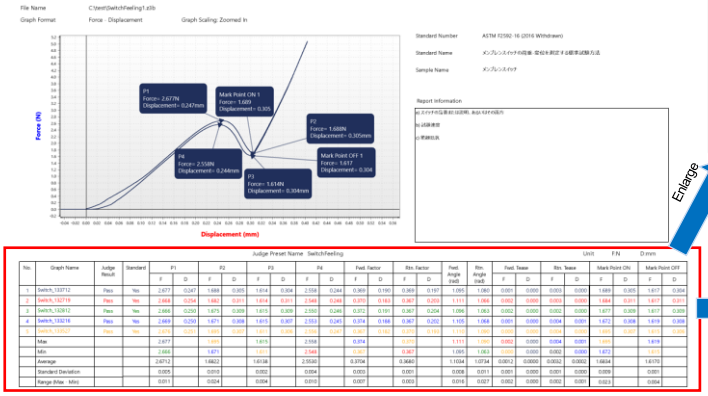
*Force-displacement graphs are only supported by Force Recorder Next Professional.

Switch Operating Force Values

		Yes	
Threshold	F	0.100	
P1	F	2.677	N
	D	0.247	mm
P2	F	1.688	N
	D	0.305	mm
P3	F	1.614	N
	D	0.304	mm
P4	F	2.558	N
	D	0.244	mm
Fwd. Factor	F	0.369	
	D	0.190	
Rtn. Factor	F	0.369	
	D	0.197	
Fwd. Angle		1.095	rad
Rtn. Angle		1.080	rad
Fwd. Tease	F	0.001	N
	D	0.000	mm
Rtn. Tease	F	0.003	N
	D	0.000	mm

■ Measurement data can be easily output using dedicated report templates, csv, etc.

▼Example of report template for Switch Operating Force Testing Module



Judge Preset Name SwitchFeeling

No.	Graph Name	Judge Result	Standard	P1		P2		P3		P4	
				F	D	F	D	F	D	F	D
1	Switch_133712	Pass	Yes	2.677	0.247	1.688	0.305	1.614	0.304	2.558	0.244
2	Switch_132719	Pass	Yes	2.668	0.254	1.682	0.311	1.614	0.311	2.548	0.248
3	Switch_132812	Pass	Yes	2.666	0.250	1.675	0.309	1.615	0.309	2.550	0.246
4	Switch_133216	Pass	Yes	2.669	0.250	1.671	0.308	1.615	0.307	2.553	0.245
5	Switch_133527	Pass	Yes	2.676	0.251	1.695	0.307	1.611	0.306	2.556	0.247
	Max			2.677		1.695		1.615		2.558	
	Min			2.666		1.671		1.611		2.548	
	Average			2.6712		1.6822		1.6138		2.5530	
	Standard Deviation			0.005		0.010		0.002		0.004	
	Range (Max - Min)			0.011		0.024		0.004		0.010	

Enlarge

Enlarge

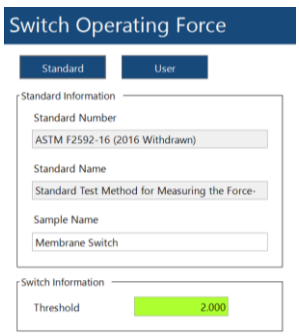
Unit F:N D:mm

Fwd. Factor		Rtn. Factor		Fwd. Angle (rad)	Rtn. Angle (rad)	Fwd. Tease		Rtn. Tease		Mark Point ON		Mark Point OFF	
F	D	F	D			F	D	F	D	F	D	F	D
0.369	0.190	0.369	0.197	1.095	1.080	0.001	0.000	0.003	0.000	1.689	0.305	1.617	0.304
0.370	0.183	0.367	0.203	1.111	1.066	0.002	0.000	0.003	0.000	1.684	0.311	1.617	0.311
0.372	0.191	0.367	0.204	1.096	1.063	0.002	0.000	0.002	0.000	1.677	0.309	1.617	0.309
0.374	0.188	0.367	0.202	1.105	1.068	0.001	0.000	0.004	0.001	1.672	0.308	1.619	0.308
0.367	0.182	0.370	0.193	1.110	1.090	0.000	0.000	0.004	0.000	1.695	0.307	1.615	0.306
0.374		0.370		1.111	1.090	0.002	0.000	0.004	0.001	1.695		1.619	
0.367		0.367		1.095	1.063	0.000	0.000	0.002	0.000	1.672		1.615	
0.3704		0.3680		1.1034	1.0734	0.0012	0.0000	0.0032	0.0002	1.6834		1.6170	
0.003		0.001		0.008	0.011	0.001	0.000	0.001	0.000	0.009		0.001	
0.007		0.003		0.016	0.027	0.002	0.000	0.002	0.001	0.023		0.004	

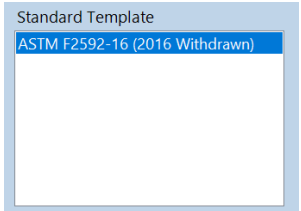
Feature 2

Supports measurements complying with the Switch Operating Force Testing

■ The preset measurement conditions comply with relevant standards for switch testing for easy setups according to the standard required. Also, the user preset function enables additional standard registration for the measurement requirements.

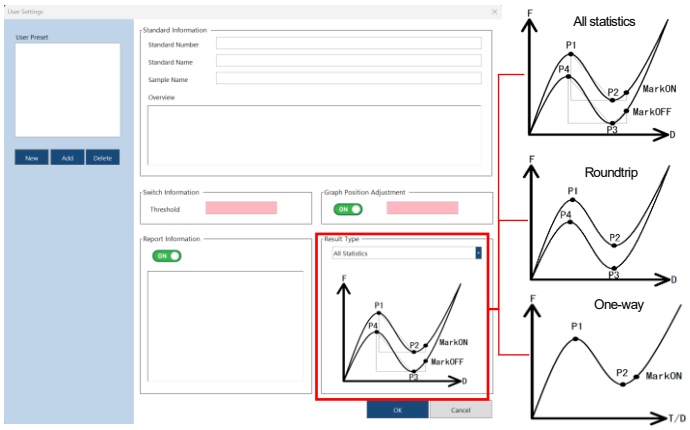


▼Supported standard(as of November2024)



*Additional specifications added by special order. Please contact us for details.

■ For User Presets, 3 "Result Types" are available for the measurement requirements.



Download the features at IMADA Connected

IMADA Connected is IMADA's user support site. You can use various services by registering your account and product. "Online software update service" for registered products and "Download service for various additional functions, software, and instruction manuals" are available (some services at cost)

IMADA Connected
https://www.imada-connected.com/

Product registration is only available for Next Series products with version 5.00 or later. After downloading the software, enable the use of products with versions earlier than 5.00.

Chargeable Download Cards for Additional Functions

Additional Function	Download Card Light	Download Card Basic	Download Card Advanced
Friction Testing Module		✔	
Peel Testing Module			✔
Pressure/Stretchability Measurement Module		✔	
Switch Operating Force Testing Module	✔		

◎ For details of “Force Recorder Next Series”, please refer to the specification sheets. Specification sheets are available on each product page of our products and services website (QR code on the right).

FORCE MEASUREMENT IMADA

IMADA CO., LTD.
99, Jinnoshinden-cho, aza Kanowari,
Toyohashi, Aichi, 441-8077, Japan
TEL: +81-(0)532-33-3288
E-Mail: info@forcegauge.net
HP: https://www.forcegauge.net/en

MEMO