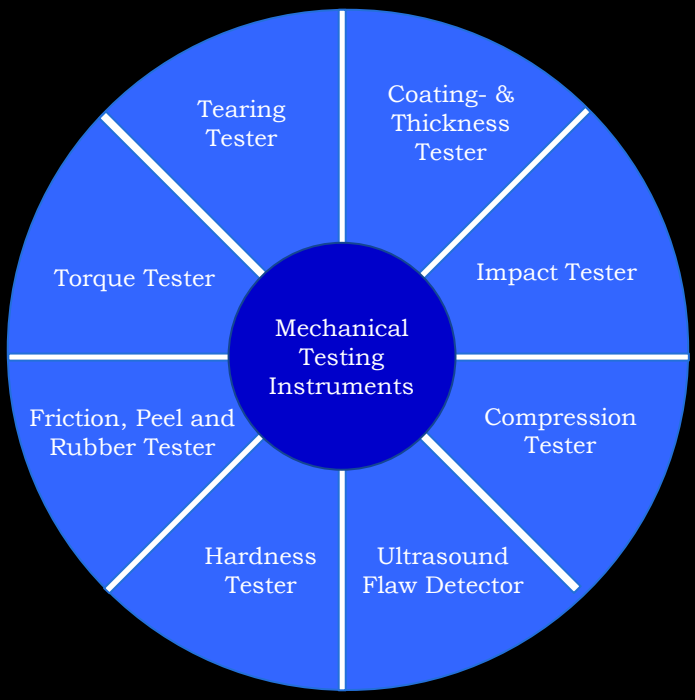
MECHANICAL TESTING INSTRUMENTS



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Mechanical Testing Instruments

In this catalogue series, Tiedemann offers an almost complete list of all necessary equipment and systems for materials testing from the Chinese partner SolidNDT as well as Jinan Zhongce Electromechanical Equipment Co., Ltd, www.pubtester.com, a spin-off of the developers of Labthink Instruments.

In addition to permeation testers, heat seal testers, leak testers, fogging testers or colour testers as well as universal testing machines, we present in this catalogue all testing instruments for measuring special mechanical properties.

The testing devices measure the static and kinetic coefficient of friction, the thickness and layer thickness, the hardness of materials, the impact strength, failure limit and pendulum impact strength of plastic foils, sheets, paper, cardboard, fabrics, rubber and other materials. In addition, we offer a device for determining the speed of sound in liquid and solid media and an ultrasonic system for searching for defects such as cracks or cavities in components.

The compression load tester tests boxes and crates for their compression strength, deformation and stackability, while the torque tester measures the opening and closing force of bottle caps.

The high-precision instruments work with the latest and partially integrated software with an integrated microcomputer or connection to a computer. The software allows the user a precise data evaluation through different display options as well as comparison, search and help functions and an automated status query of the device with regular calibration reminders.

In addition, we offer permeation testers, heat seal testers, leak testers, fogging testers, colour, glance or haze testers as well as tensile and pressure testers in further catalogues of their own.

Please do not hesitate to contact us if you are interested!

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Friction and Peeling

The **COF-01, COF-01A and FPT-F1** devices measure the static and kinetic coefficient of friction of plastic films, sheets, paper, cardboard, fabrics, rubber and other materials. The **PSPT-0** specifically measures the friction of catheters and guide wires in medical technology.

The **COF-01** friction coefficient tester is the standard friction tester for every laboratory and is characterized by very high accuracy and is aligned to a total of four standards. For testing the coefficient of friction even at higher temperatures, the **COF-01A** model is suitable up to temperatures of 90°C.

The **FPT-01** is a friction and peel-off tester that can test both static and dynamic coefficient of friction as well at elevated temperatures, as well as peel-off resistance of adhesive materials at 180° peel angle.

The **BLD-01** is limited to pull-off resistance but can handle higher forces.

Overview of Testers for Friction and Peeling

Tester	Temp.	Force Range	Stroke (mm)	Accuracy	Speed	Standards
COF-01 **COF-01A**	RT RT – 90°C	5N opt.10, 30, 50 or 100 N	300	0,05% FS	100, 150 mm/min	ISO 8295 ASTM D 1894
FPT-01	RT -100°C	5, 10, 30 N	300	0,1% FS	0,05-500 mm/min	ASTM D1894, ISO 8295, ISO 8510-2, ASTM D4917
PSPT-02	0 – 95°C	10N, opt. 5, 30 or 50 N	600	0,01% FS	0,05-500 mm/min	ASTM E4, ASTM D882, ASTM D1938, ASTM D3330, ASTM F88, ASTM F904
BLD-01	RT	30, 50, 100, 200 or 500 N	500	0,5% FS	0,05–1000 mm/min	GB/T 4850-2002 GB 8808

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Coefficient of Friction Tester

COF-01 / COF-01A

Features:
- Tests the static and kinetic coefficient of friction
- Materials: Plastic foils, rubber, paper, etc.
- Text mode selectable according to standard
- Integrated microcomputer and micro printer
- COF-01A can heat samples up to 90°C

Advantages:
- Standard device with high accuracy
- Temperature range up to 90°C for type COF-01

Force Range	0 - 5 N, optional 10, 30 , 50 or 100 N
Accuracy	0,05% FS
Stroke	100,150mm
Speed	100 mm/min, 150mm/min
Standards	ISO 8295, ASTM D1894, TAPPI T816, GB 10006

FPT-01

Properties:
- Tests the static and kinetic coefficients of friction of plastic films, sheets, paper, cardboard, fabrics, etc.
- 180° peel test of adhesive materials, such as tape, plaster, foil, etc.
- Variable test speeds
- Complies with several standards
- Computer-controlled

Advantages:
- Wide temperature range up to 100°C

Force Range	0–5, 0–10 or 0–30 N
Accuracy	0,1% FS
Speed	Variable from 0,05 - 500 mm/min
Temperature	Room Temperature – 100°C
Standards	ISO 8295, ISO 8510-2, ASTM D1894, ASTM D4917, ASTM D3330, TAPPI T816, TAPPI T549, GB 10006, GB/T 2790, GB/T 2791, GB/T 2792

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PSPT-02

Properties:

- Tests the friction and sliding properties of catheters and guidewires
- Temperature adjustment of the water bath
- Vertical arrangement
- Membranes for testing stiffness
- Automatic procedure
- Easy to perform

Advantages:

- Universal tester can be used elsewhere

Force Range	10 N (Standard; 5, 30 , 50 N (Optional)
Test Speed	0,05 – 300 mm/min
Stroke	600 mm
Standards	YY/T 1536-2017, ISO 37, GB 8808, GB/T 1040.1-200, GB/T 1040.2-2006, GB/T 1040.3-2006、GB/T 1040.4-2006, GB/T 1040.5-2008、GB/T 4850-2002、GB/T 12914-2008、GB/T 17200、GB/T 16578.1-2008、GB/T 7122、GB/T 2790、GB/T 2791、GB/T 2792、GB/T 17590、ASTM E4、ASTM D882、ASTM D1938、ASTM D3330、ASTM F88、ASTM F904、JIS P8113、QB/T 2358、QB/T 1130

BLD-01

Features:

- Peel and strip tests of plastic films, adhesive tapes, paper, cardboard, laminated films, laminating films, fabrics, etc.
- 180° peel-off test of adhesive materials, such as adhesive tape, tape, plaster, laminating film, etc.
- Variable test speeds

Advantages:

- Numerous clamps

Force Range	30, 50 100, 200 or 500 N
Sample Width	30 mm
Accuracy	0,5% FS
Test Speed	Variable from 0,05 - 1000 mm/min
Stroke	500 mm
Standards	GB/T 4850-2002、GB 8808、GB/T 1040.3-2006、GB/T 17200、GB/T 2790、GB/T 2791、GB/T 2792、QB/T 2358

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Mobile Hardness Tester

Lpad H100/110/120
Lpad H210

Properties:
- For all steels and aluminium
- All standards such as HL, HV, HRA, HRC, HRB, HB, HS
- Accuracy: 0.5
- Sensor type H100-120: D, DL
- Sensor type H210: D, DL, D+15, DC, C, E, G
- H110-120: Memory for 300 measurements
- H210: USB stick storage

Advantages:
- Good readability with OLED display
- Easy portable pen design
- All data readable at the workstation

Adhesive Tape Roller

YGJ-03

Properties:
- Tests the durability of printing inks on adhesive tapes, plastic films, glass paper and materials printed with gravure printing technology.
- Tests the adhesion of the surface layer after vacuum coating and lamination
- Integrated microcomputer

Advantages:
- Standardised test procedure

Roller Pressure	20 N ±0.5 N
Speed	300mm/min
Number of Moves	3-999
Standards	GB/T 7707, JIS C2107, JIS Z0237

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IRT-01

Properties:

- Tests of abrasion on printed material like paper, plastic films, packaging etc.
- Fixed tes area
- Automatic procedure
- Counting the number of moves
- Beeps when test is finished

Advantages:

- Easy to use

Force	20±0.2N
Test Speed	0 – 60 cpm (Standard : 43cpm)
Test Area	155 mm x 50 mm
Stroke	60 mm
Number of Moves	0 – 999999
Standards	GB/T 7706

HD-M008-2

Features:

- Abrasion Tester for bigger end products like pans, pots, coated material, printed matter etc.
- Different weights possible
- Variable test speed
- Number of strokes are counted

Advantages:

- Unique system for larger products or parts

Force	21 N
Test Speed	6.5 or 33 m/min
Test Area	2 x 350 x 350 mm, independent application
Stroke	100 mm
Number of Moves	counted
Standards	In-house standards

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NEEDLE TUBE TESTER

MTT-01

Properties:

- Bending properties and strength of medical needle tubes and other materials.
- For normal, thin and ultra-thin tubes
- Load of 20 deflections
- Visual examination of the fracture behaviour

Advantages:

- Easy to perform

Bending Angle	15°, 20°, 25°
Needle Tube Diameter	0,2 – 3,4 mm
Load Frequency	0,5 Hz
Standards	GB/T 18457-2015, ISO9626-1991, GB/T 15811-2016

MRT-01

Properties:

- Tests the stiffness of medical needles
- For normal, thin and ultra-thin needles
- Automatic calibration

Advantages:

- Simple test procedure

Deflection	0 – 5 mm
Deflection Force	0 – 80 N
Deflection Speed	0 – 10 mm/min
Needle Diameter	0,3 – 3,4 mm
Standards	GB 15811, YBB00092004-2015, GB 18457

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Thickness and Coating Thickness Tester

In this chapter, we offer everything you need for thickness measurement, from handheld to laboratory systems.
Our handheld devices **Cpad X300 and X400** for coating thickness measurement work with ultrasound. This makes it easy to determine e.g. the thickness of paint layers or galvanised layers.
The handy **Upad T300, T400 and T410** thickness gauges easily measure material thicknesses below simultaneous layer thicknesses of up to 25 mm. All devices are self-calibrating and store the measurement data on a USB stick.

The **THK-01 and THK-01H** thickness testers are designed for laboratory use and are based on the contacting method, which results in precise and internationally standardised test data. The units are equipped with a computer control system and only require the connection of output devices.
Packaging materials such as plastic films, membranes, paper, silicon w afers, metal sheets, fabrics and insulating materials can be measured up to 12 mm thickness.
There are adapted pressure feet for the different materials. With the **THK-01H** model, both paper and foils can be measured.

All devices determine the maximum and minimum values as well as average values and standard deviations. The model **THK-01H** can work manually or automatically.

Mobile Testers

Tester	Measurement	Method	Range (mm)	Accuracy	Extra
Cpad T300	Coating Thickness	F :Ferro-magnetic N: non magnetic NC: non conductive	F: 0-0.4, 0-1.25, 0-10 N: 0-0.4, 0-1.25 NC: 0-0.2	1-2%	
Cpad T400					WIFI
Upad X300	Thickness below Coating	P-E Modus E-E Modus below max 25 mm layer	0.75-500	0.1 mm (>100 mm) 0.01 mm (<100 mm)	
Upad X400			0.75-400		Bluetooth
Upad X410			0.75-400		Bluetooth OLED

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Thickness Tester

Laboratory Equipment

	THK-01	THK-01H
		
Applikation	Paper, Carton	Paper, Carton and Foils
Test Range (mm)	0-2 (Standard), 0-6 /0-12 (Optional)	0-2 (Standard)
Resolution (µm)	0.1	
Test Pressure	50±1 kPa (Paper)	17.5±1 kPa (Foils), 50±1 kPa (Paper)
Test Area (mm^2)	200 (Paper)	50 (Foils) , 200 (Paper)
Test Speed	1-25/min	
Automatic Sample Speed	/	0.1 - 99.9 mm/s
Sample Transport	/	0 – 1000 mm
Standards	GB/T 451.3, ASTM D645, ASTM D374, ASTM D1777, TAPPI T411, ISO 4593, ISO 534, ISO 3034, DIN 53105, DIN 53353, JIS K6250, JIS K6328, JIS K6783, JIS Z1702, BS 3983, BS 4817, GB/T 6672, GB/T 6547	ISO 9073-2、ISO 12625-3、ISO 5084、ISO 4593、ISO 534、ISO 3034、GB/T 6672、GB/T 451.3, GB/T 6547、GB/T 6672、GB/T 451.3、GB/T 6547、GB/T 24218.2、ASTM D645、ASTM D374、ASTM D1777、ASTM D6988, ASTM F2251、ASTM D3652、TAPPI T411、TAPPI T411、DIN 53105, DIN 53353、DIN 53370, JIS K6250、JIS K6328、JIS K6783、JIS Z1702、JIS K6250、JIS K6783, JIS Z1702、BS 3983, BS 4817、BS 2782-6、FEFCO No 3、EN 1942

Impact and Tearing Tester

The impact tester with dart drop weight **DIT-01** tests the impact strength and failure limit of material samples made of plastic, aluminium and composite foils, sheets, paper and cardboard with a thickness of <1mm. A ball test is available as well.

The **FPP-01** pendulum impact tester measures the impact strength of various materials such as plastic films, paper or cardboard.

The **FTS-01**, also called the Elmendorf tester, tests the tear strength of foils, paper or similar flat materials.

Impact Tester

DIT-01

Properties:
- Dart Impact Tester
- Tests the impact strength and failure limit of plastic, aluminium and composite foils, sheets, paper, cardboard, etc.
- Material sample thickness <1mm
- 2 optional test heights A and B to choose
- Pneumatic clamps
- Computer controlled

Advantages:
- Easy to use
- High accuracy
- Accessories foot pedal switch recommended

Range	A: 50 – 2000g B: 300-2000 g
Test Area	150 mm in diameter
Resolution	0.1g or 0.1J
Standards	ASTM D1709, ISO 7765-1-1988, JIS K7124-1, GB/T 9639.1-2008

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IMPACT AND TEARING TESTER

FPP-01

Properties:

- Pendulum Impact Tester
- Tests pendulum impact strength of plastic, aluminium and composite foils, paper, cardboard etc.
- Pneumatic clamps
- Integrated microcomputer

Advantages:

- Easy to use
- High accuracy

Range	1J, 2J, 3J (Standard). 5J (Option)
Resolution	0,001J
Sample Size	100 x 100 mm
Standards	GB 8809-88, ASTM D3420, NF T54-116

Tearing Tester

FTS-01

Features:

- Elmendorf tester
- PC controlled pendulum impact tester for testing the tensile strength of films, sheets, PVC, PVDC, polyester, paper, etc.
- Pneumatic clamps

Advantages:

- Easy to use
- Versatile accessories

Range	200 gf, 400 gf, 800 gf, 1600 gf, 3200 gf, 6400 gf
Standards	ISO 6383-1-1983, ISO 6383-2-1983, ISO 1974, ASTM D1922, ASTM D1424, ASTM D689, TAPPI T414, GB/T16578.2-2009, GB/T 455

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Flex-Durability Tester

RTT-01

Eigenschaften:

- Tester for testing the kneading and creasing behaviour of flexible foils or paper up to 0.3 mm
- Five fixed test modes, 1 free mode
- 4 test stations
- Integrated microcomputer with LCD menu navigation

Advantages:

- Allows combinations of non-standard test

Bending Frequency	45/Min
Bending Angel	440° oder 400°
Tension ad Compression Force	300 N
Stoke	150 mm/ 80 mm
Sample Thickness	Max. 3 mm
Standards	ASTM F392、YY/T0681.12

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Torque Tester

Manual Torque Tester

DTT-01

Features:
- Measures the opening and closing torque of bottle caps, tube lids and filling spouts.
- Integrated microcomputer and microprinter

Advantages:
- Easy to use
- Stores up to 50000 test results

Range	20 Nm (Standard) 40 Nm (Optional) 50 Nm (Optional)
Accuracy	1% FS
Clamp Area	Φ5 mm ~ Φ170 mm
Standards	ASTM D2063, ASTM D3198, ASTM D3474, BB/T 0025, BB/T 0034, GB/T 17876

DTT-02

Features:
- Measures the opening and closing torque of bottle caps, tube lids and filling spouts.
- Pneumatic clamping
- Integrated microcomputer and microprinter

Advantages:
- Manual or automatic
- Stores up to 50000 test results

Range	5 Nm (Standard) 20 Nm (Optional) 40 Nm (Optional)
Bottle Size	20 – 400 mm
Resolution / Accuracy	0,001 Nm / 0,05% FS
Clamp Area	Φ5 mm ~ Φ170 mm
Standards	GB/T 17876, ASTM D2063, ASTM D3198, ASTM D3474, BB/T 0025, BB/T 0034

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Ultrasound Flaw Detector System

The battery-operated fault locator **UFD-Pad** is a lightweight dust, water and shock protected professional device for fault location of e.g. cracks or blowholes in materials. Typical applications are found in pressure vessels, aircraft and automotive construction, weld seam inspections, railway tracks, etc.

With the 10" screen, the WIFI connection or the storage of the measurement data on an inserted USB stick, handling in the WIN 10 system is all the easier. The ultrasonic device works with square pulses and offers self-calibration.

UFD-Pad – Technical Data

Range	Resolution	Ultrasound Speed	Pulse Type	Frequency Range
0-1000 mm	0,01 mm (<100 mm) 1 mm (>100 mm)	0 – 20000 m/s	Square pulse with pulse width 25 ns – 15 µs	Max. 25 kHz

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