

# OPTIONAL ACCESSORIES FOR TENSILON

## RTF SERIES / RTG SERIES



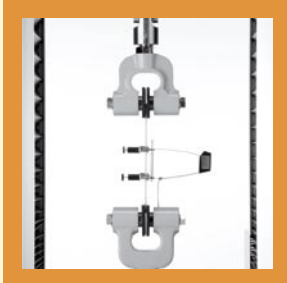
## The functions of TENSILON increase with the addition of an extensive range of attachment devices.



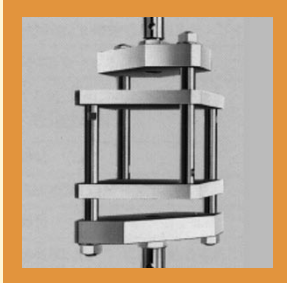
**TENSILON** is the name of the first domestic Universal Testing Machine manufactured by A&D in Japan.



**TENSILON** is a machine that has an advanced mechanical structure and was developed using leading-edge AC servomotor and computer control technology. Given its drive control performance and far superior multi-functionality, the user not only controls simple stroke action, but creep, relaxation, cycle and other actions.



**TENSILON**'s basic application was for the tensile testing of materials and products, but by utilizing a variety of attachment devices, one can select from various testing modes such as compression, bending, shearing, peeling and friction. TENSILON can also conduct test for environmental characteristics by the addition of an environment chamber. In addition, TENSILON provides a variety of jigs since every tensile test requires a different kind of jig depending on the sample shape and testing method.



**TENSILON** has various kinds of jigs and we can provide the best testing conditions depending on the purpose of your experiment.

Note: This catalog is designed for the TENSILON RTF and RTG series, and may not be applicable to other TENSILON series.

- Please be reminded that the information provided in this catalog is subject to change.
- When you inquire about attachment devices, please have available the name of the attachment device, the product code, and the name of the TENSILON series.
- Please note that if the user would like an attachment device, confirm whether associated parts are necessary before you place your order.
- Only standard attachment devices are described in this catalog, but we can provide other attachment devices not described here. Please inform us in the event that you require special attachment devices.

## INDEX

**Tensile Test Devices****1-1. Configurations**

RTF-1210, RTG-1210.....	4
RTF-1225, RTG-1225 / RTF-1250, RTG-1250.....	5
RTF-1310, RTG-1310.....	5
RTF-2325, RTF-2350 (Floor model) / RTF-1325, RTF-1350 (Table model).....	6.....
RTF-2410 (Floor model).....	7
RTF-2425, RTF-2430 (Floor model).....	8

**1-2. Universal joints**

Universal joints.....	9
-----------------------	---

**1-3. Jaws**

Screw action jaws.....	10~11
Wedge action jaws (Non-sliding type).....	12
Wedge action jaws (Sliding type).....	13
Air jaws.....	14~15
Air jaws (Air jaws for tire cord, Oil jaws).....	16~18
Jaws for rubber.....	19
Reel jaws (Jaws for Rope, String, Yarn) .....	20
Other special jaws.....	21

**Compression, Bending Test****2. Configurations**

Compression test jig, Compression cage.....	22~23
Bending test jig, Bending cage.....	24

**High Polymers Test****3. Jigs**

Compression, Shear, Friction coefficient test for plastics .....	25....
Film blocking test, Cleavage test, Initial tear strength .....	26..
CFRP vertical compression (Cone type, Pyramid type), Compression of plastic laminate.....	26~27

**Textile Materials Test****4. Jigs**

Burst test, Expansion forth test, Shearing test.....	27~28
Cloth tearing, Slide-slip resistance test.....	28

**Paper and Pulp Test****5. Jigs**

Vertical compression.....	29
Compression of cardboard case, friction coefficient for paper .....	29.....

**Wood Materials Test****6. Jigs**

3-point compression bending for timber, 3-point compression bending for House board, Timber shearing.....	30....
Timber cleavage, Hardness, Nail drawing resistance, Wood screw withdrawal strength.....	31...

**Peeling and Debonding Test****7. Jigs**

Adhesive strength for sealing material, Particle board .....	32....
90-degree, 90-degree for printed board, Sellotape drum .....	32~33
90-degree for adhesive tape, 90-degree for rubber .....	33.....
Tensile bond strength, Splitting strength .....	34....

**Other Special Test****8. Jigs**

Compression of urethane foam, 3-point / 4-point compression bending, Leather ball bursting .....	35....
4-point compression bending of concrete, 3-point compression bending of tiles .....	36....

**Temperature Chamber Test****9. Jigs**

Temperature chamber construction, specifications .....	37~39
Device structure for chamber use (R3T / R4T / U4 / U5 series) .....	40~43

**Detector and Calibration Device****10. Detectors**

For both tensile and compression, for smaller loads, load cell, strain gauge .....	44..
--	------

**Extensometer**

Strain gauge type extensometer between gauge marks .....	45....
Calibration device for strain gauge type extensometer .....	46....
Contact / Non-contact extensometer between gauge marks .....	47.....

## JIS Standards and Test jigs INDEX

JIS standards No.: year	Name of test jigs	Product code	Year	Page
<b>A : Civil engineering and Construction</b>				
JIS A5208 : 1996	3-point bending for tiles	J-BAI-5KN	1996	
JIS A5209 : 1994	3-point bending for tiles	J-BAI-5KN	1994	
JIS A1408 : 2001	3-point bending for house boards (for test material No. 3)	J-BA-10KN	2001	
JIS A1106 : 2006	4-point bending for concrete	J-BA-100KN	2006	
JIS A5758 : 1986	Adhesive strength for sealing materials	J-PZ5-1KN	1986	
JIS A5905 : 2003	Debonding for particle boards	J-9Z5-5KN	2003	
JIS A5905 : 2003	Wood nail drawing resistance	J-TAM-1KN	2003	
JIS A5905 : 2003	Wood screw withdrawal strength	J-TAM-5KN	2003	
<b>C : Electronic devices and Electrical machines</b>				
JIS C2111 : 2002	Initial tear strength	J-SP-500N	2002	
JIS C2317 : 1999	Initial tear strength	J-SP-500N	1999	
JIS C2318 : 1997	Initial tear strength	J-SP-500N	1997	
JIS C6481 : 1996	90-degree peeling for printed boards	J-PZ-200N	1996	
<b>K : Chemistry</b>				
JIS K6854 : 1994	90-degree peeling	J-PZ2-1KN	1994	
JIS K7076 : 1991	CFRP vertical compression (Cone type)	J-CP2-50KN	1991	
JIS K7076 : 1991	CFRP vertical compression (Pyramid type)	J-CP1-50KN	1991	
JIS K7171 : 1994	Bending	J-B-100KN	1994	
JIS K7171 : 1994	Bending	J-B-10KN	1994	
JIS K6382 : 1995	Compression for urethane foams	J-CG-1KN	1995	
JIS K6548 : 1995	Leather ball bursting	J-CZ-1KN	1995	
JIS K6550 : 1994	Leather ball bursting	J-CZ-1KN	1994	
JIS K6256 : 2006	90-degree peeling for rubber	J-PZ-1KN	2006	
JIS K7171 : 1994	Bending cage	J-BE-5KN	1994	
JIS K7171 : 1994	Bending cage	J-BE-1KN	1994	
JIS K6849 : 1994	Tensile bond strength	J-PZ-2.5KN	1994	
JIS K6911 : 1995	Compression of plastics	J-CP-50KN	1995	
JIS K7208 : 1995	Compression of plastics	J-CP-50KN	1995	
JIS K7113 : 1995	Jaws for plastic molding test material	J-TPM-10KN	1995	
JIS K6911 : 1995	Jaws for plastic molding test material	J-TPM1-10KN	1995	
JIS K7208 : 1995	Compression of plastic laminates	J-CP1-5KN	1995	
JIS K7076 : 1991	Compression of plastic laminates	J-CP1-5KN	1991	
JIS K7214 : 1985	Shear for plastics	J-SP-50KN	1985	
JIS K7125 : 1999	Plastic friction coefficient	J-PZ2-50N	1999	
JIS K6911 : 1995	Cleavage	J-CP-5KN	1995	
JIS K6853 : 1994	Splitting strength	J-PZ6-1KN	1994	
<b>L : Textiles</b>				
JIS L1096 : 1999	Slide-slip resistance	J-SL-250N	1999	
JIS L1018 : 1999	Crab type jaws Double cut face for 5kN	J-FFMDG-5KN	1999	
JIS L1018 : 1999	Crab type jaws Double cut face for 1kN	J-FFMDG-1KN	1999	
JIS L1018 : 1999	Crab type jaws Double cut face for 250N	J-FFMDG-250N	1999	
JIS L1018 : 1999	Crab type jaws Flat face for 5kN	J-FFMFG-5KN	1999	
JIS L1018 : 1999	Crab type jaws Flat face for 1kN	J-FFMFG-1KN	1999	
JIS L1018 : 1999	Crab type jaws Flat face for 500N	J-FFMFG-500N	1999	
JIS L1018 : 1999	Crab type jaws Flat face for 250N	J-FFMFG-250N	1999	
JIS L1018 : 1999	Burst test for 5kN	J-CL-5KN	1999	
JIS L1018 : 1999	Burst test for 1kN	J-CL-1KN	1999	
JIS L1096 : 1999	Burst test for 5kN	J-CL-5KN	1999	
JIS L1096 : 1999	Burst test for 1kN	J-CL-1KN	1999	
<b>P : Pulp and Paper</b>				
JIS P8147 : 1994	Paper friction coefficient	J-PZ3-50N	1994	
JIS P8113 : 2006	Jaws for Paper	J-TWM-300N	2006	
<b>R : Ceramic engineering</b>				
JIS R1601 : 1995	3-point / 4-point compression of Ceramics	J-BR-5KN	1995	
<b>Z : Others</b>				
JIS Z0401 : 1985	Vertical compression	J-CW2-1KN	1985	
JIS Z1507 : 1989	Compression of cardboard case	J-CW-50KN	1989	
JIS Z0237 : 1994	90-degree peeling of adhesive tapes	J-PZ1-1KN	1994	
JIS Z0237 : 2000	90-degree peeling of adhesive tapes	J-PZ10-1KN	2000	
JIS Z2101 : 1994	3-point bending of timber	J-BA-5KN	1994	
JIS Z2101 : 1994	Timber hardness	J-ZA-5KN	1994	
JIS Z2101 : 1994	Shear for timber	J-SA-5KN	1994	
JIS Z2101 : 1994	Timber cleavage	J-PA-1KN	1994	

Note: The above testing jigs may become non-standard over time. Some jigs may differ from the examples under the JIS standard. In addition to the jigs above, other jigs are available. Please contact us in the event the jig you need is not listed above

## Types of Jaws

The following chart shows typical jaws and the applicable test materials.

		Screw action jaws	Wedge action jaws	Drill jaws	Self-tightening (Eccentric 2 rollers)	Reel	Self-tightening (One roller)	Hook	Air action jaws	Air action jaws for tire cord	Oil action jaws	Clip jaws
Types of Jaws	External clamp	○		○					○	○	○	○
	Self-tightening clamp		○	△	○	○				△	△	
	Hook						○	○				
Drive systems	Manual	○	○	○	○	○	○	○				
	Air pressure								○	○		
	Oil pressure										○	
	Spring											○
Testpieces	Board	○	○		△			○	○		○	
	Film	○			△				○			○
	Round bar		○	○							○	
	Wire	○	○	○					○	○		○
	Pipe		○	△							○	
	Molded object	○	○				○	△	○		○	
	String	○				○			○	○		○
	Wire					○				○		
	Rope					○						
	Cord	△				○				○		
	Belt	△			△	○			△			
	Dumbbell	△			○				○			
	Ring							○				
	Paper	○			△				○			○

## Tensile test

The tensile test is the most fundamental test for testing mechanical properties of various materials. The structure of TENSILON was designed to attach more importance to the tensile tests.

Although the capacity for the test load is fixed, by the addition of load cells and jigs, it is equipped with features capable of conducting tests with small loads even on machines with a large loading capacity.

Therefore in order to effectively utilize all the functions of TENSILON, it is important to understand the operation of the assortment of load cells and jigs. In this chapter, we introduce some examples of the most standard combinations of jigs and jaws necessary for tensile test. Knowledge of the application of these devices will help the user to perform successful tests.

TENSILON can be used for high-accuracy small load test by changing load cells.

TENSILON features many kinds of jaws that can be adapted to the shape, intensity, strength and hardness of the material as well as a selection of jaws and jaw faces to correspond to the purpose of the experiment.

TENSILON has a common connection method and dimension for load cells and jigs which makes it easy to select jigs based on the test load.

### Note

- Jig** : The jaw is just one type of jig among the devices necessary to conduct test.
- Jaw** : "Grab jig" is the name given to the apparatus used for gripping the test material. It can also be called test material Chuck or Grip.
- Jaw face** : Selection of the proper jaw face is essential to securely grab the test material. Please choose the appropriate jaw face from among our vast selection.
- Universal joint** : When using the machine for a tensile test, it is necessary to place the test material on the center of the tensile axis. By using a universal joint, you can automatically avoid deviations of the axle.

### RTF-1210 / RTG-1210

Tensile test category	Standard tensile test load		Tensile test with small load			
	Load	1kN (100kgf)	10N (1kgf)		50N (5kgf)	
Device configuration						
① Load cell	1kN	UR-1KN-D	10N	UR-10N-D	50N	UR-50N-D
② Universal joint	1kN	J-UF-1KN	10N	J-UF-10N	50N	J-UF-50N
③ Jaw	1kN	Screw action jaws	10N	Various jaws	50N	Various jaws

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

### RTF-1225, RTG-1225 / RTF-1250, RTG-1250

Tensile test category	Standard tensile test load		Tensile test with small load		
Load	2.5kN (250kgf)	5kN (500kgf)	10N (1kgf)	50N (5kgf)	1kN (100kgf)
Device configuration					
① Load cell	2.5kN UR-2.5KN-D	5kN UR-5KN-D	10N UR-10N-D	50N UR-50N-D	1kN UR-1KN-D
② Universal joint	5kN J-UF-5KN	5kN J-UF-5KN	10N J-UF-10N	50N J-UF-50N	1kN J-UF-1KN
③ Jaw	5kN Screw action jaws	5kN Screw action jaws	10N Various jaws	50N Various jaws	1kN Various jaws

### RTF-1310, RTG-1310

Tensile test category	Standard tensile test load	Tensile test with small load			
Load	10kN (1tf)	10N (1kgf)	50N (5kgf)	1kN (100kgf)	5kN (500kgf)
Device configuration					
① Load cell	10kN UR-10KN-D	10N UR-10N-D	50N UR-50N-D	1kN UR-1KN-D	5kN UR-5KN-D
② Universal joint	10kN J-UF-10KN	10N J-UF-10N	50N J-UF-50N	1kN J-UF-1KN	5kN J-UF-5KN
③ Jaw	10kN Wedge action jaws	10N Various jaws	50N Various jaws	1kN Various jaws	5kN Various jaws

# 1-1 Configuration of Tensile Test Devices

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

## RTF-2325, RTG-2350 (Floor type) / RTF-1325, RTG-1350 (Table type)

Tensile test category	Standard tensile test load		Tensile test with small load
Load	25kN (2.5tf)	50kN (5tf)	10N (1kgf)
Device configuration			
① Load cell	25kN UF-2·5-A	50kN UF-5-A	10N UR-10N-D
② Universal joint	50kN J-UF-50KN	50kN J-UF-50KN	10N J-UF-10N
③ Jaw	50kN Wedge action jaws	50kN Wedge action jaws	10N Various jaws

Tensile test category	Tensile test with small load			
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
Device configuration				
① Load cell	50N UR-50N-D	1kN UR-1KN-D	5kN UR-5KN-D	10kN UR-10KN-D
② Universal joint	50N J-UF-50N	1kN J-UF-1KN	5kN J-UF-5KN	10kN J-UF-10KN
③ Jaw	50N Various jaws	1kN Various jaws	5kN Various jaws	10kN Various jaws



### RTF-2410 (Floor type)

Tensile test category	Standard tensile test load	Tensile test with small load				
Load	100kN (10tf)	10N (1kgf)	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
Device configuration						
① Load cell	100kN UF-10-A	10N UR-10N-D	50N UR-50N-D	1kN UR-1KN-D	5kN UR-5KN-D	10kN UR-10KN-D
② Universal joint	100kN J-UF-100KN	10N J-UF-10N	50N J-UF-50N	1kN J-UF-1KN	5kN J-UF-5KN	10kN J-UF-10KN
③ Jaw	100kN Wedge action jaws	10N Various jaws	50N Various jaws	1kN Various jaws	5kN Various jaws	10kN Various jaws

### RTF-2425, RTF-2430 (Floor type)

Tensile test category	Standard tensile test load	Tensile test with small load				
Load	250kN (25tf)	300kN (30tf)	10N (1kgf)	50N (5kgf)	1kN (100kgf)	5kN (500kgf)
Device configuration						
① Load cell	300kN UF-30-A		10N UR-10N-D	50N UR-50N-D	1kN UR-1KN-D	5kN UR-5KN-D
② Tensile/Compression arbor	300kN J-C-300KN-A					
③ Universal joint	300kN J-UF-300KN		10N J-UF1-10N	50N J-UF-50N	1kN J-UF-1KN	5kN J-UF-5KN
④ Jaw	300kN Wedge action jaws	300kN Wedge action jaws	10N Various jaws	50N Various jaws	1kN Various jaws	5kN Various jaws

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 1-1 Configuration of Tensile Test Devices

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

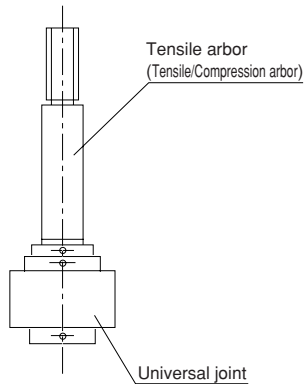
## RTF-2425, RTF-2430 (Floor type)

Tensile test category	Tensile test with small load			
Load	10kN (1tf)	25kN (2.5tf)	50kN (5tf)	100kN (10tf)
Device configuration				
① Load cell	10kN UR-10KN-D	25kN UF-2.5-A	50kN UF-5-A	100kN UF-10-A
③ Universal joint	10kN J-UF-10KN	50kN J-UF1-50KN	50kN J-UF1-50KN	100kN J-UF1-100KN
④ Jaw	10kN Various jaws	25kN Various jaws	50kN Various jaws	100kN Various jaws

Note: The T-hook appropriate to the standard load cell is necessary.

Standard load cell	Long T hook product code
10kN ~ 2.5kN (1tf) (250kgf)	J-T1-10KN
1kN ~ 25N (100kgf) (2.5kgf)	J-T1-1KN

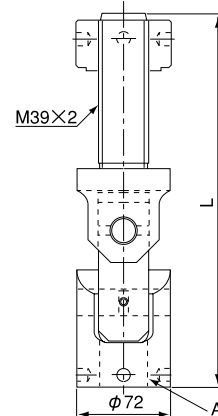
300kN (30tf) ~250kN (25tf)



Load	Weight (kg)	Product code
300kN (30tf)	24	J-UF-300KN

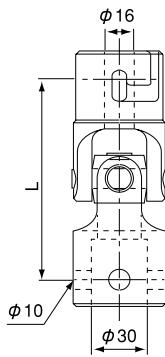
Note: The tensile arbor jig (Product code: J-C-300KN-A) is required separately

100kN (10tf) ~25kN (2.5tf)



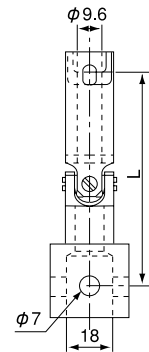
Load	Size (mm)		Weight (kg)	Product code
	A	L		
100kN (10tf)	M39x2	290	5.0	J-UF-100KN
		330	5.5	J-UF1-100KN
50kN (5tf)	M30x1.5	290	4.3	J-UF-50KN
		330	4.8	J-UF1-50KN

10kN (1tf) ~2.5kN (250kgf)



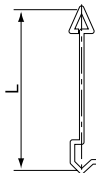
Load	Size (mm)	Weight (kg)	Product code
	L		
10kN (1tf)	110	1.3	J-UF-10KN
5kN (500kgf)	96	1.2	J-UF-5KN

1kN (100kgf) ~25N (2.5kgf)



Load	Size (mm)	Weight (g)	Product code
	L		
1kN (100kgf)	82.5	240	J-UF-1KN
50N (5kgf)	76.5	70	J-UF-50N

10N (1kgf) ~1N (100gf)



Load	Size (mm)	Weight (g)	Product code
	L		
	10N (1kgf)		
63 (B)		0.7	
175		1.2	J-UF1-10N

Note: One each of A and B. 1 set of 2 pieces

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

## Screw action jaws

5kN (500kgf) ~ 50N (5kgf)

● **Applicable testpiece** : Rubber, plastic, textile, fabric, paper, others

● **Standard configuration** : Upper and lower jaws (1 set)

Standard faces (1 set)

Switch handle for face (1 piece)

● **Operating temperature limit** : -10°C to +70°C for normal use

-65°C to +270°C for chamber use

(The temperature limit of J-JFM-50N-1kN is -65°C to +100°C.)

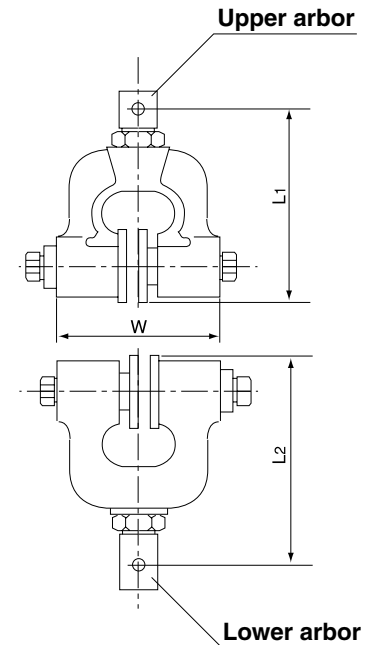
### ● Jaw type

Load	Product code	Size (mm)			Weight of upper jaw (kg)
		W	L <sub>1</sub>	L <sub>2</sub>	
5kN/2.5kN(500kgf/250kgf)	J-JFM-5KN	130	159	172	3.4
1kN/500N(100kgf/50kgf)	J-JFM-1KN	110	133	153	1.2
250N(25kgf)	J-JFM-250N	85	87.5	103.5	0.65
50N(5kgf)	J-JFM-50N	85	86.5	103.5	0.3

Note: L<sub>1</sub> and L<sub>2</sub> are the sizes when the standard face is attached.

Note: Above product code doesn't include the face.

Note: Configurations of 250N/50N types are slightly different from the figure on the right.

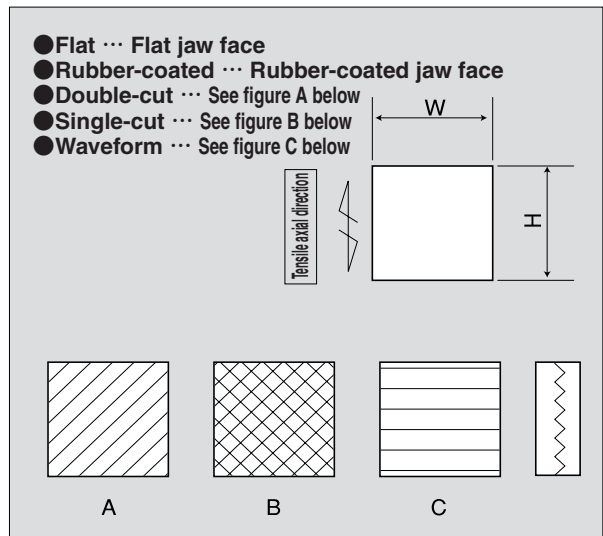


### ● Jaw faces

Load	Testpiece	Surface type	Size W×H (mm)	Span (mm)	Product code			
5kN/2.5kN (500kgf/250kgf)	Board, fabric, paper	Flat	60×60	0~18	J-FFMF1-5KN			
	Board	Single-cut			J-FFMS1-5KN			
	Board	Double-cut			J-FFMD1-5KN			
	1kN/500N (100kgf/50kgf)	Fabric, paper	Rubber-coated	30×30	0~16	J-FFMR1-5KN		
		Fabric	Waveform			J-FFMW1-5KN		
		Board, fabric, paper	Flat			J-FFMF2-5KN		
		250N (25kgf)	Board	Single-cut	40×40	0~18	J-FFMS2-5KN	
			Board	Double-cut			J-FFMD2-5KN	
			Fabric, paper	Rubber-coated			J-FFMR2-5KN	
			50N (5kgf)	Fabric	Waveform	60×25	0~15	J-FFMW2-5KN
				Board, fabric, paper	Flat			J-FFMF3-5KN
				Board	Single-cut			J-FFMS3-5KN
1kN/500N (100kgf/50kgf)				Board	Double-cut	50×50	0~14	J-FFMD3-5KN
				Fabric, paper	Rubber-coated			J-FFMR3-5KN
				Fabric	Waveform			J-FFMW3-5KN
	250N (25kgf)			Board, fabric, paper	Flat	60×50	0~14	J-FFMF4-1KN
				Board	Single-cut			J-FFMS4-1KN
				Board	Double-cut			J-FFMD4-1KN
		50N (5kgf)		Fabric, paper	Rubber-coated	30×50	0~12	J-FFMR4-1KN
				Fabric	Waveform			J-FFMW4-1KN
				Board, fabric, paper	Flat			J-FFMF1-1KN
			1kN/500N (100kgf/50kgf)	Board	Single-cut	20×50	0~14	J-FFMS1-1KN
				Board	Double-cut			J-FFMD1-1KN
				Fabric, paper	Rubber-coated			J-FFMR1-1KN
250N (25kgf)				Fabric	Waveform	60×50	0~12	J-FFMW1-1KN
				Board, fabric, paper	Flat			J-FFMF2-1KN
				Board	Single-cut			J-FFMS2-1KN
	50N (5kgf)			Board	Double-cut	30×50	0~14	J-FFMD2-1KN
				Fabric, paper	Rubber-coated			J-FFMR2-1KN
				Fabric	Waveform			J-FFMW2-1KN
		1kN/500N (100kgf/50kgf)		Board, fabric, paper	Flat	20×50	0~14	J-FFMF3-1KN
				Board	Single-cut			J-FFMS3-1KN
				Board	Double-cut			J-FFMD3-1KN
			250N (25kgf)	Fabric, paper	Rubber-coated	30×50	0~12	J-FFMR3-1KN
				Fabric	Waveform			J-FFMW3-1KN
				Board, fabric, paper	Flat			J-FFMF4-1KN
50N (5kgf)				Board	Single-cut	30×50	0~14	J-FFMS4-1KN
				Board	Double-cut			J-FFMD4-1KN
				Fabric, paper	Rubber-coated			J-FFMR4-1KN
	1kN/500N (100kgf/50kgf)			Fabric	Waveform	30×50	0~12	J-FFMW4-1KN

Load	Testpiece	Surface type	Size W×H (mm)	Span (mm)	Product code	
250N (25kgf)	Board, fabric, paper	Flat	25×25	0~9	J-FFMF1-250N	
	Board	Single-cut			J-FFMS1-250N	
	Board	Double-cut			J-FFMD1-250N	
	50N (5kgf)	Fabric, paper	Rubber-coated	60×25	0~7	J-FFMR1-250N
		Fabric	Waveform			J-FFMW1-250N
		Board, fabric, paper	Flat			J-FFMF2-250N
50N (5kgf)		Board	Single-cut	60×25	0~9	J-FFMS2-250N
		Board	Double-cut			J-FFMD2-250N
		Fabric, paper	Rubber-coated			J-FFMR2-250N
	50N (5kgf)	Fabric	Waveform	60×25	0~9	J-FFMW2-250N

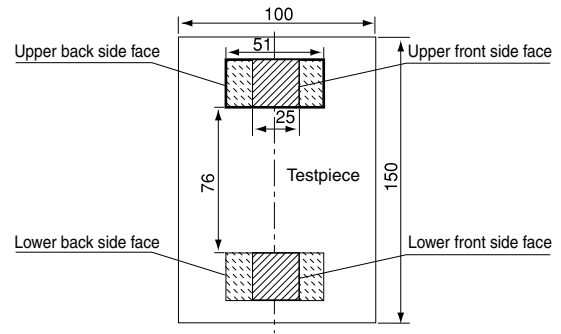
Note: Standard type is indicated by a highlighted square.



**Grab type jaw face JIS L1018:1999, ASTM D1682**

Load	Surface type	Size (mm)		Product code
		Front side	Back side	
5kN/25kN (500kgf/250kgf)	Flat	25×25	51×25	J-FFMFG-5KN
	Double-cut			J-FFMDG-5KN
1kN (100kgf)	Flat			J-FFMFG-1KN
	Double-cut			J-FFMDG-1KN
500N (50kgf) ※	Flat			J-FFMFG-500N
250N/50N (25kgf/5kgf)	Flat			J-FFMFG-250N
	Double-cut	J-FFMDG-250N		

Note: Applicable to screw action jaws and air jaws.  
The ※ mark in the above chart indicates it is only for 500N air jaws.

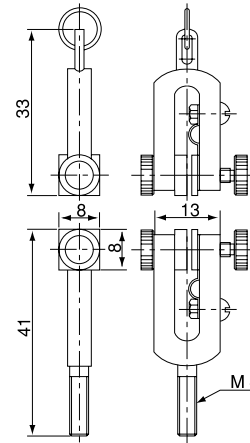


**Screw action jaws 10N (1kgf)**

- **Testpiece :** Rubber, plastic, paper, string, others
- **Standard configuration :** Upper/Lower jaws. 1 set (including faces)
- **Operating temperature limit :** -10°C to + 70°C for normal use  
-65°C to + 270°C for chamber use

Load	Surface type	Product code	Weight of upper jaw (g)
10N(1kgf)	Flat	J-JFM-10N	12

Note: Lower arbor is included.

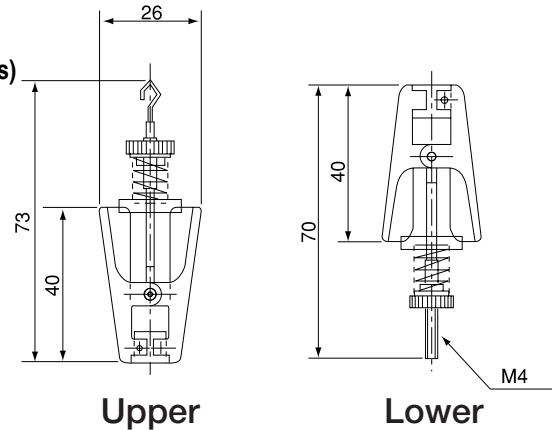


**Clip jaw (500gf) (Adjustable type with clamping capability)**

- **Testpiece :** Rubber, plastic, paper, string, others
- **Standard configuration :** Upper/Lower jaws. 1 set (including faces)
- **Operating temperature limit :** -10°C to + 70°C

Load	Surface type	Size (mm)	Product code	Weight of upper jaw (g)
5N(500gf)	Flat	8×8	J-TZM-5N	12

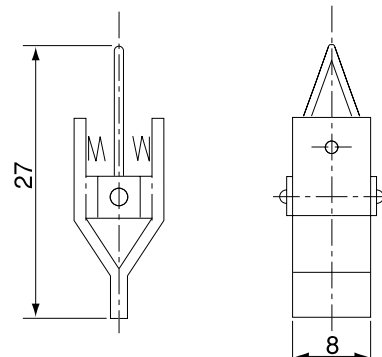
Note: Lower arbor is included.



**Spring action jaw 1N(100gf)**

- **Testpiece :** Rubber, plastic, string, others
- **Standard configuration :** Only upper jaw (1 set of 4 pieces)
- **Operating temperature limit :** -10°C to + 70°C

Load	Surface type	Size (mm)	Product code	Weight of upper jaw (g)
1N(100gf)	Striation	8×8	J-JFM-1N	3



- 1 Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- 2 Compression, Bending Test
- 3 High Polymers Test
- 4 Textile Material
- 5 Paper & Pulp Test
- 6 Wood Material
- 7 Peeling & Debonding
- 8 Other Special Test
- 9 Temperature Chamber
- 10 Detector & Calibration Device
- Load cell
- Extensometer

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

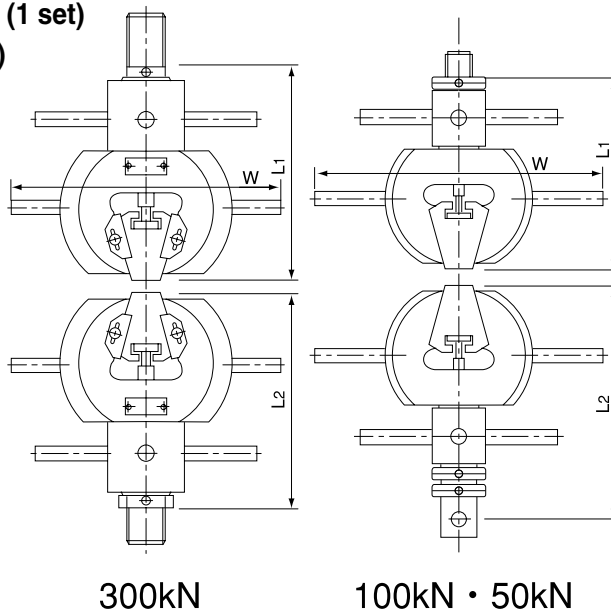
## Wedge action jaws

### Wedge action jaws (Non-sliding type)

- **Testpiece** : Metal, plastic, timber, others
- **Standard configuration** : Upper and lower jaws (1 set)  
Standard faces (1 set)
- **Operating temperature limit** : -10°C to +70°C for normal use
- **Jaw type**

Load	Product code	Size (mm)			Weight of upper jaw (kg)
		W	L <sub>1</sub>	L <sub>2</sub>	
300kN(30tf)	J-JBM-300KN	306	297.5	297.5	36
100kN(10tf)	J-JBM-100KN	408	268	323	21
50kN(5tf)	J-JBM-50KN	282	196	246	8.2
10kN(1tf)	J-JBM-10KN	218	213	213	3.9
5kN(500kgf)	J-JBM-5KN	208	202	202	1.7
1kN(100kgf)	J-JBM-1KN	208	208	203	1.7

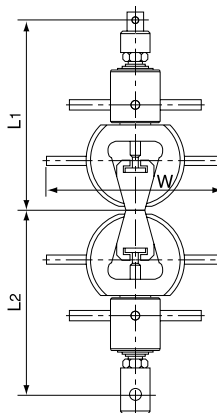
Note: Above product code doesn't include the face.



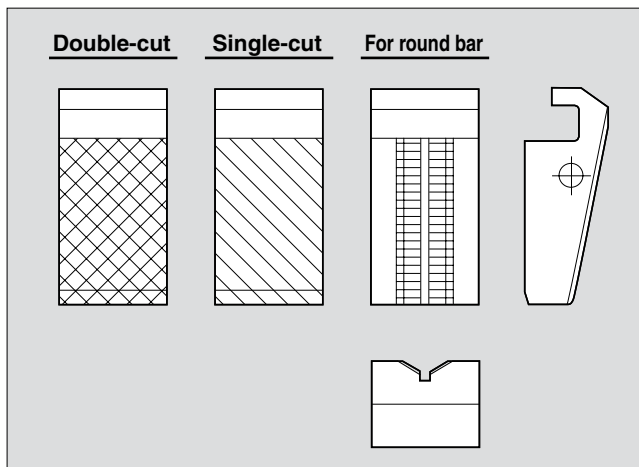
### ● Jaw face types

Load	Surface type	Span (mm)	Product code
300kN(30tf)	Double-cut	0~12	J-FBMD1-300KN
		10~22	J-FBMD2-300KN
		20~32	J-FBMD3-300KN
	Single-cut	0~12	J-FBMS1-300KN
		10~22	J-FBMS2-300KN
		20~32	J-FBMS3-300KN
	For round bar	φ6~14	J-FBMB1-300KN
		φ12~20	J-FBMB2-300KN
		φ18~26	J-FBMB3-300KN
φ24~32		J-FBMB4-300KN	
100kN(10tf)	Double-cut	0~12	J-FBMD1-100KN
		10~22	J-FBMD2-100KN
		20~32	J-FBMD3-100KN
	Single-cut	0~12	J-FBMS1-100KN
		10~22	J-FBMS2-100KN
		20~32	J-FBMS3-100KN
	For round bar	φ6~14	J-FBMB1-100KN
		φ12~20	J-FBMB2-100KN
		φ18~26	J-FBMB3-100KN
φ24~32		J-FBMB4-100KN	
50kN(5tf)	Double-cut	0~10	J-FBMD1-50KN
		9~18	J-FBMD2-50KN
	Single-cut	0~10	J-FBMS1-50KN
		9~18	J-FBMS2-50KN
	For round bar	φ6~13	J-FBMB1-50KN
		φ12~20	J-FBMB2-50KN
10kN(1tf)	Double-cut	0~10	J-FBMD1-10KN
5kN(500kgf)	Single-cut	0~10	J-FBMS1-10KN
		9~18	J-FBMS2-10KN
	For round bar	φ5~12	J-FBMB1-10KN
φ10~17		J-FBMB2-10KN	

Note: Standard type is indicated by a highlighted square.



10kN · 5kN · 1kN

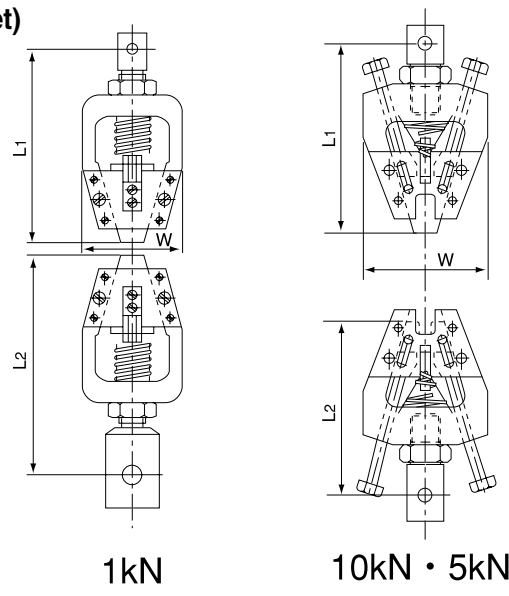


**Wedge action jaws (Sliding type)**

- **Testpiece** : Metal, plastic, timber, others
- **Standard configuration** : Upper and lower jaws (1 set)  
Standard faces (1 set)
- **Operating temperature limit** : -10°C to +70°C for normal use  
-65°C to +270°C for chamber use
- **Jaw type**

Load	Product code	Size (mm)			Weight of upper jaw (kg)
		W	L <sub>1</sub>	L <sub>2</sub>	
100kN(10tf)	J-JCM-100KN	228	150	150	21
50kN(5tf)	J-JCM-50KN	198	180	230	8.7
10kN(1tf)	J-JDM-10KN	100	152	142	3.6
5kN(500kgf)	J-JDM-5KN	95	149	159	3.2
1kN(100kgf)	J-JDM-1KN	60	116	132	0.9

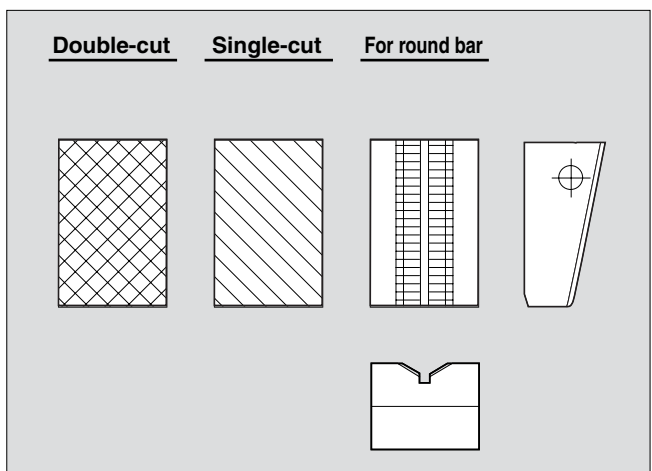
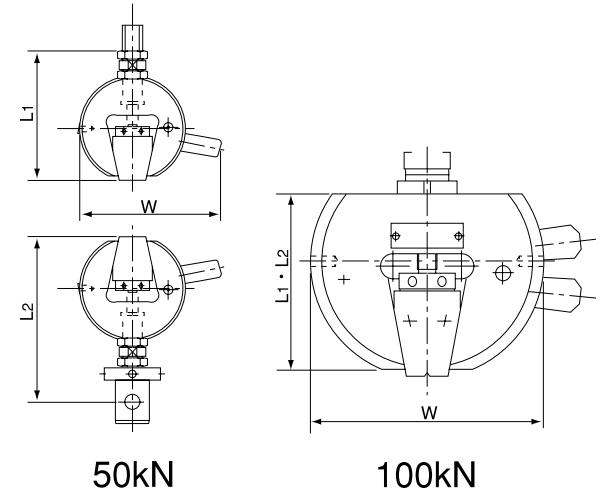
Note: Above product code doesn't include the face.



**Jaw face types**

Load	Surface type	Span (mm)	Product code
100kN(10tf)	Double-cut	0~5	J-FCMD1-100KN
		4~9	J-FCMD2-100KN
	For round bar	φ7~9	J-FCMB1-100KN
		φ9~11	J-FCMB2-100KN
50kN(5tf)	Double-cut	0~5	J-FCMD1-50KN
		4~9	J-FCMD2-50KN
		8~13	J-FCMD3-50KN
		12~17	J-FCMD4-50KN
	Single-cut	0~5	J-FCMS1-50KN
		4~9	J-FCMS2-50KN
		8~13	J-FCMS3-50KN
		12~17	J-FCMS4-50KN
	For round bar	φ7~9	J-FCMB1-50KN
		φ9~11	J-FCMB2-50KN
		φ11~13	J-FCMB3-50KN
		φ13~15	J-FCMB4-50KN
		φ15~17	J-FCMB5-50KN
		φ17~19	J-FCMB6-50KN
10kN(1tf)	Double-cut	0~11	J-FDMD1-10KN
	Single-cut	0~11	J-FDMS1-10KN
		φ5~10	J-FDMS1-10KN
	For round bar	φ8~16	J-FDMS1-10KN
		φ12~20	J-FDMS1-10KN
		φ12~20	J-FDMS1-10KN
	5kN(500kgf)	Double-cut	0~11
Single-cut		0~11	J-FDMS1-5KN
		φ5~10	J-FDMS1-5KN
For round bar		φ8~16	J-FDMS1-5KN
		φ12~20	J-FDMS1-5KN
1kN(100kgf)	Double-cut	0~7	J-FDMD1-1KN
	Single-cut	0~7	J-FDMS1-1KN
		φ5~10	J-FDMS1-1KN
	For round bar	φ10~15	J-FDMS1-1KN

Note: Standard type is indicated by a highlighted square.



① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

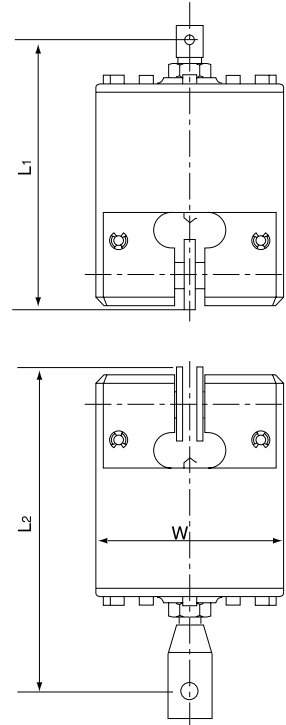
## Air jaws

### Air jaw (Normal action type)

- **Testpiece** : Rubber, plastic, textile, fabric, string, paper, others
- **Standard configuration** : Upper and lower jaws (1 set)  
Standard faces (1 set)  
Control device for air jaw
- **Maximum air pressure of rated capacity** : 0.5Mpa (5kgf/cm<sup>2</sup>)
- **Operating temperature limit** : -10°C to +70°C for normal use  
-65°C to +150°C for chamber use
- **Jaw type**

Load	Product code	Size (mm)			Weight of upper jaw (kg)
		W	L <sub>1</sub>	L <sub>2</sub>	
10kN(1tf)	J-JFA-10KN	φ 176	275	290	12
5kN(500kgf)	J-JFA-5KN	φ 169	260	275	9.2
1kN(100kgf)	J-JFA-1KN	φ 129	191	225	3.4
500N(50kgf)	J-JFA-500N	φ 90	180	193	1.8
50N(5kgf)	J-JFA-50N	φ 60	124.5	137.5	0.6

Note: L<sub>1</sub> and L<sub>2</sub> are the sizes when the standard face is attached.  
Note: Above product code doesn't include the face.

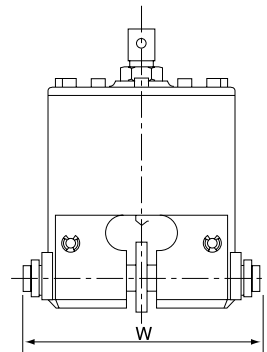


### Air jaw (Adjustable-span type)

The span between the faces is adjustable.

Load	Product code	Size (mm) W
10kN(1tf)	J-JFAF-10KN	246
5kN(500kgf)	J-JFAF-5KN	246
1kN(100kgf)	J-JFAF-1KN	183
500N(50kgf)	J-JFAF-500N	148
50N(5kgf)	J-JFAF-50N	94

Note: Above product code doesn't include the face.

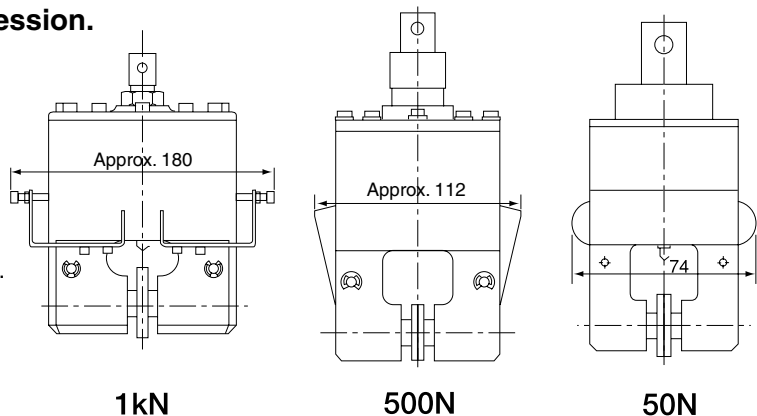


### Air jaw (Spring pre-compression type)

The faces are closed by pre-compression.

Load	Product code
1kN(100kgf)	J-JFAS-1KN
500N(50kgf)	J-JFAS-500N
50N(5kgf)	J-JFAS-50N

Note: Above product code doesn't include the face.





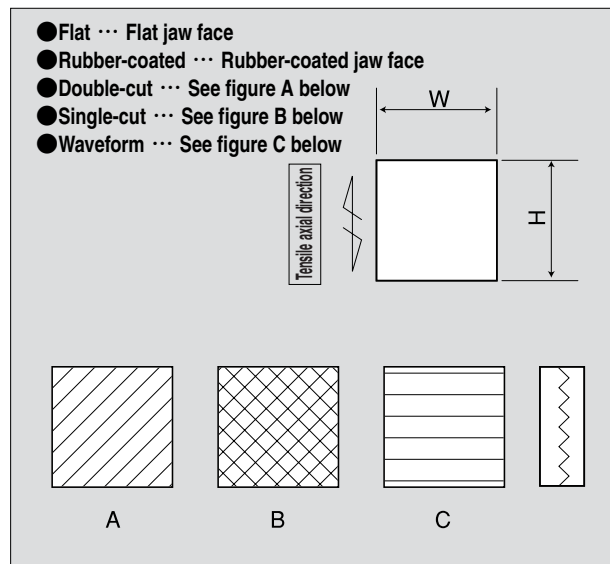
## ● Jaw face types

Load	Testpiece	Surface type	Size WxH (mm)	Span (mm)	Product code		
10kN (1tf)	Board, fabric, paper	Flat	60×60	0~14	J-FFMF1-5KN		
	Board	Single-cut			J-FFMS1-5KN		
	Board	Double-cut			J-FFMD1-5KN		
	Fabric, paper	Rubber-coated			J-FFMR1-5KN		
	Fabric	Waveform			J-FFMW1-5KN		
	Board, fabric, paper	Flat			J-FFMF2-5KN		
5kN (500kgf)	Board	Single-cut	30×30	0~14	J-FFMS2-5KN		
	Board	Double-cut			J-FFMD2-5KN		
	Fabric, paper	Rubber-coated			J-FFMR2-5KN		
	Fabric	Waveform			J-FFMW2-5KN		
	Board, fabric, paper	Flat			40×40	0~14	J-FFMF3-5KN
	Board	Single-cut					J-FFMS3-5KN
Board	Double-cut	J-FFMD3-5KN					
Fabric, paper	Rubber-coated	J-FFMR3-5KN					
Fabric	Waveform	J-FFMW3-5KN					
Board, fabric, paper	Flat	J-FFMF1-1KN					
1kN (100kgf)	Board	Single-cut	50×50	0~10	J-FFMS1-1KN		
	Board	Double-cut			J-FFMD1-1KN		
	Fabric, paper	Rubber-coated			J-FFMR1-1KN		
	Fabric	Waveform			J-FFMW1-1KN		
	Board, fabric, paper	Flat			60×50	0~10	J-FFMF2-1KN
	Board	Single-cut					J-FFMS2-1KN
	Board	Double-cut	J-FFMD2-1KN				
	Fabric, paper	Rubber-coated	J-FFMR2-1KN				
	Fabric	Waveform	J-FFMW2-1KN				
	Board, fabric, paper	Flat	20×50	0~10			J-FFMF3-1KN
	Board	Single-cut			J-FFMS3-1KN		
	Board	Double-cut			J-FFMD3-1KN		
	Fabric, paper	Rubber-coated			J-FFMR3-1KN		
	Fabric	Waveform			J-FFMW3-1KN		
	Board, fabric, paper	Flat			30×50	0~10	J-FFMF4-1KN
	Board	Single-cut	J-FFMS4-1KN				
	Board	Double-cut	J-FFMD4-1KN				
	Fabric, paper	Rubber-coated	J-FFMR4-1KN				
	Fabric	Waveform	J-FFMW4-1KN				

Load	Testpiece	Surface type	Size WxH (mm)	Span (mm)	Product code
500N (50kgf)	Board, fabric, paper	Flat	30×30	0~12	J-FFMF1-500N
		Rubber-coated		0~10	J-FFMR1-500N
		Flat	40×30	0~12	J-FFMF2-500N
		Rubber-coated		0~10	J-FFMR2-500N
		Flat	50×30	0~12	J-FFMF3-500N
		Rubber-coated		0~10	J-FFMR3-500N
50N (5kgf)	Board, fabric, paper	Flat	25×25	0~9	J-FFMF1-250N
	Board	Single-cut			J-FFMS1-250N
	Board	Double-cut			J-FFMD1-250N
	Fabric, paper	Rubber-coated			J-FFMR1-250N
	Fabric	Waveform			J-FFMW1-250N
	Board, fabric, paper	Flat			60×25
	Board	Single-cut	J-FFMS2-250N		
	Board	Double-cut	J-FFMD2-250N		
	Fabric, paper	Rubber-coated	J-FFMR2-250N		
	Fabric	Waveform	J-FFMW2-250N		

Note: Standard type is indicated by a highlighted square.

Note: When used with air jaws, the span will be reduced by 1mm. (With the 50N, the span will be reduced by approx. 3mm.)



## Air jaw for tire cord

- **Testpiece** : Cord, string, others
- **Standard configuration** : Upper and lower jaws (1 set, including faces)  
Air jaw controller
- **Maximum air pressure of rated capacity** : 0.5Mpa (5kgf/cm<sup>2</sup>)
- **Operating temperature limit** : -10°C to +70°C for normal use

### ● Jaw type

Load	Product code	Size (mm)		
		W	L <sub>1</sub>	L <sub>2</sub>
2.5kN(250kgf)	J-JTA-2.5KN	200	209	219
500N(50kgf)	J-JTA-500N	135	145	161

### ● Related devices for air jaws

Configuration when air jaws are used.

Items (1), (2) and (3) below are necessary to use air jaws.

#### 1. Air jaw controller is composed of items (1), (2) and (3) below.

Product code: RTF-10

- (1) Air jaw controller
- (2) Lube SW (Lube SW will be installed on the back side of the machine.)
- (3) Air hose

#### 2. Air jaw opening switch

Air jaw opening switch is included in the user interface

(Touch panel or MSAT and Commander) of the machine's body.

An air jaw opening switch will be required separately depending on the purpose of the test.

Product code: RTF-01 (Touch panel) or MSAT and RTF-02 (Commander).

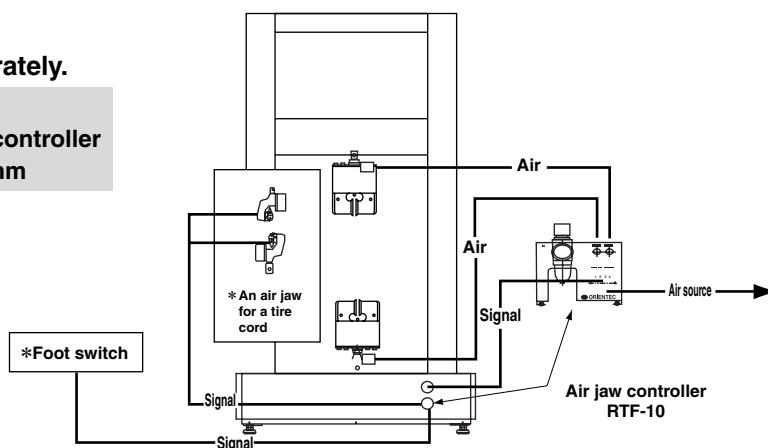
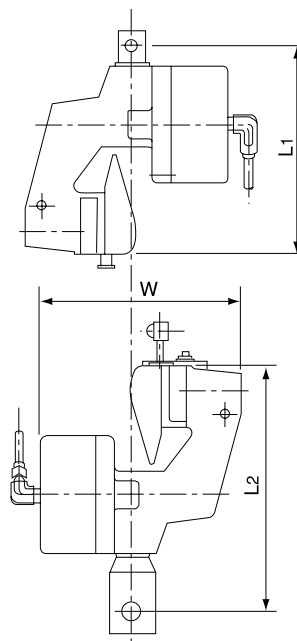
Note: Foot switch nor Commander operate independently without touch panel or MSAT

#### 3. Air source

Please prepare an air source separately.

Air pressure : Approx. 0.5 Mpa

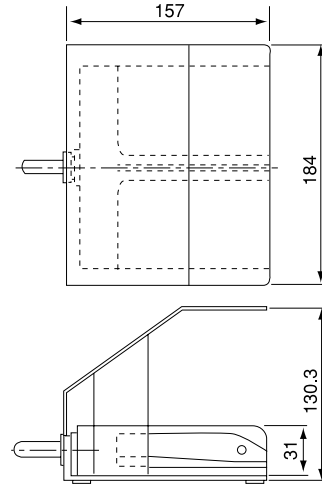
Connection : Connect to the air jaw controller with an air hose of φ 6mm



Note: It is not possible to use both air jaws for the tire cord and foot switch at the same time.

● **Foot switch (optional)**

Note) Please choose a suitable foot switch which can be easily adapted to a standard air jaw control device (normal type or simplified type).



**Oil jaws**

● **Testpiece : Metal, others**

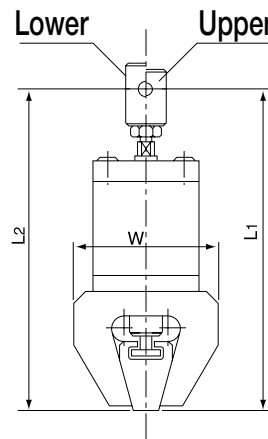
● **Standard configuration : Upper and lower jaws. 1 set**

Standard faces

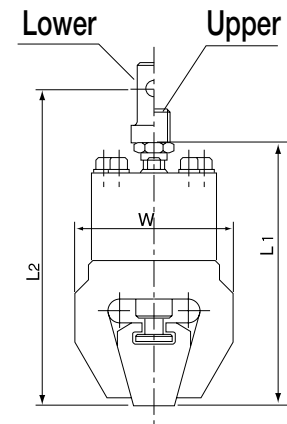
Hydraulic controller

● **Driving air pressure : 0.4 to 0.5Mpa (4 to 5kgf/cm<sup>2</sup>)**

● **Operating temperature limit : -10°C to +70°C**



10kN



300kN · 100kN · 50kN

● **Jaw type**

Load	Product code	Size (mm)			Weight of upper jaw (kg)	Applicable TENSILON model
		W	L <sub>1</sub>	L <sub>2</sub>		
300kN(30tf)	J-JBO1-300KN	φ 240	325	380	47.5	RTF-2430
100kN(10tf)	J-JBO1-100KN	φ 210	300	355	39	RTF-2430
	J-JBO2-100KN					RTF-2410
50kN(5tf)	J-JBO1-50KN	φ 180	286	350	30	RTF-2430
	J-JBO2-50KN					RTF-2410
	J-JBO4-50KN					RTF-2350.2325.1350.1325
10kN(1tf)	J-JBO1-10KN	φ 116	256	256	9	RTF-2430
	J-JBO2-10KN					RTF-2410
	J-JBO5-10KN					RTF-2350·2325·1350·1325
	J-JBO6-10KN					RTF1310·RTG1310

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

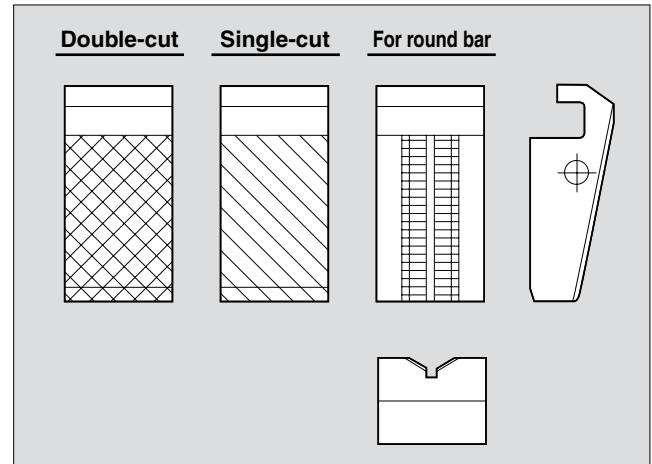
Extensometer

## ● Jaw face type

Load	Surface type	Span (mm)	Product code
300kN(30tf)	Double-cut	0.6~10	J-FBHD1-300KN
		9~18	J-FBHD2-300KN
		17~27	J-FBHD3-300KN
	Single-cut	0.6~10	J-FBHS1-300KN
		9~18	J-FBHS2-300KN
		17~27	J-FBHS3-300KN
	For round bar	φ6~14	J-FBHB1-300KN
		φ13~20	J-FBHB2-300KN
		φ19~26	J-FBHB3-300KN
100kN(10tf)	Double-cut	0.6~10	J-FBHD1-100KN
		9~18	J-FBHD2-100KN
		17~27	J-FBHD3-100KN
	Single-cut	0.6~10	J-FBHS1-100KN
		9~18	J-FBHS2-100KN
		17~27	J-FBHS3-100KN
	For round bar	φ6~14	J-FBHB1-100KN
		φ13~20	J-FBHB2-100KN
		φ19~26	J-FBHB3-100KN
50kN(5tf)	Double-cut	0.6~10	J-FBHD1-50KN
		9~18	J-FBHD2-50KN
		17~27	J-FBHD3-50KN
	Single-cut	0.6~10	J-FBHS1-50KN
		9~18	J-FBHS2-50KN
		17~27	J-FBHS3-50KN
	For round bar	φ6~14	J-FBHB1-50KN
		φ13~20	J-FBHB2-50KN
		φ19~26	J-FBHB3-50KN

Load	Surface type	Span (mm)	Product code
10kN(1tf)	Double-cut	0~8	J-FBHD1-10KN
		7~15	J-FBHD2-10KN
	Single-cut	0~8	J-FBHS1-10KN
		7~15	J-FBHS2-10KN
	For round bar	φ5~12	J-FBHB1-10KN
		φ10~17	J-FBHB2-10KN

Note) Standard type is indicated by a highlighted square.



## ● Other devices

Product name	Load	Product code	
Hydraulic controller	300kN (30tf)	J-JBO-01	
	100kN (10tf) or less	J-JBO-02	
Air compressor	50Hz	300kN (30tf)	AIR-08
	60Hz		AIR-10
	50Hz	100kN (10tf) or less	AIR-07
	60Hz		AIR-09

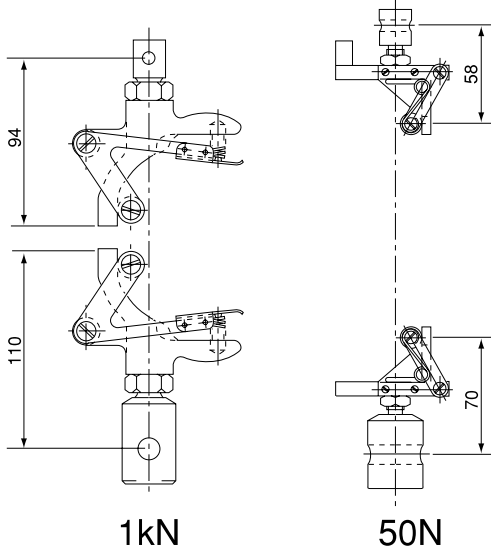
## ● Configuration of hydraulic controller

1. Control unit
2. Control box
3. Accessories (oil hose, hydraulic oil)

# Jaws for rubber

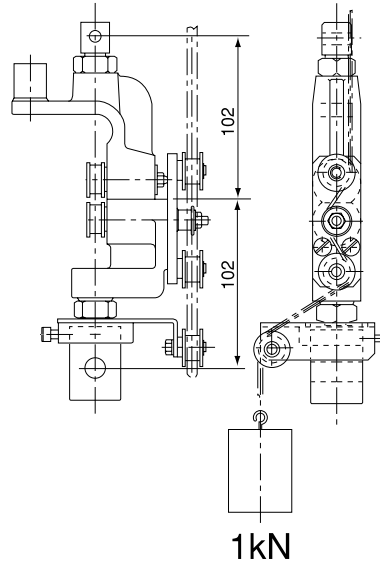
- **Testpiece** : Dumbbell, ring
- **Standard configuration** : Upper and lower jaws (1 set)
- **Operating temperature range** : -10°C to +70°C
- **Jaw type**

## Jaws for rubber (one roller type)



Load	Product code
1kN (100kgf)	J-TGM1-1KN
50N (5kgf)	J-TGM1-50N

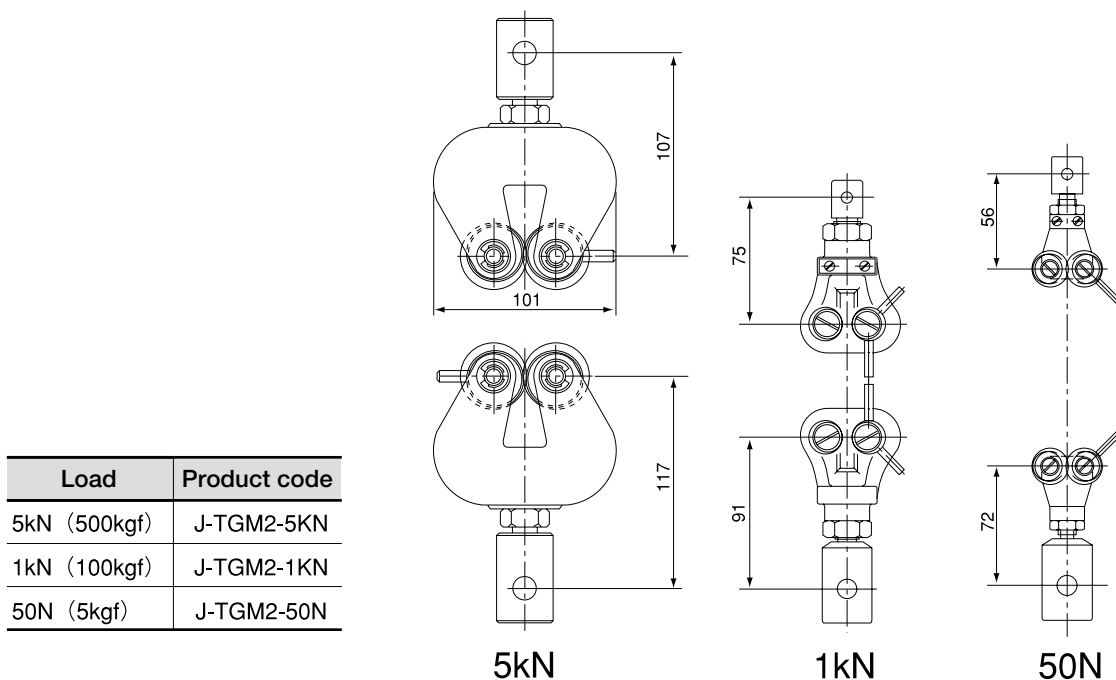
## Jaws for rubber ring



Load	Product code
1kN (100kgf)	J-TGM3-1KN (Note)

Note: J-TGM3-1KN is applicable to RTF-1310 ~ RTF-1210 and RTG-1310 ~ RTG-1210. Please inquire when using J-TGM3-1KN with other TENSILON models.

## Jaws for rubber (2-roller type)



Load	Product code
5kN (500kgf)	J-TGM2-5KN
1kN (100kgf)	J-TGM2-1KN
50N (5kgf)	J-TGM2-50N

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

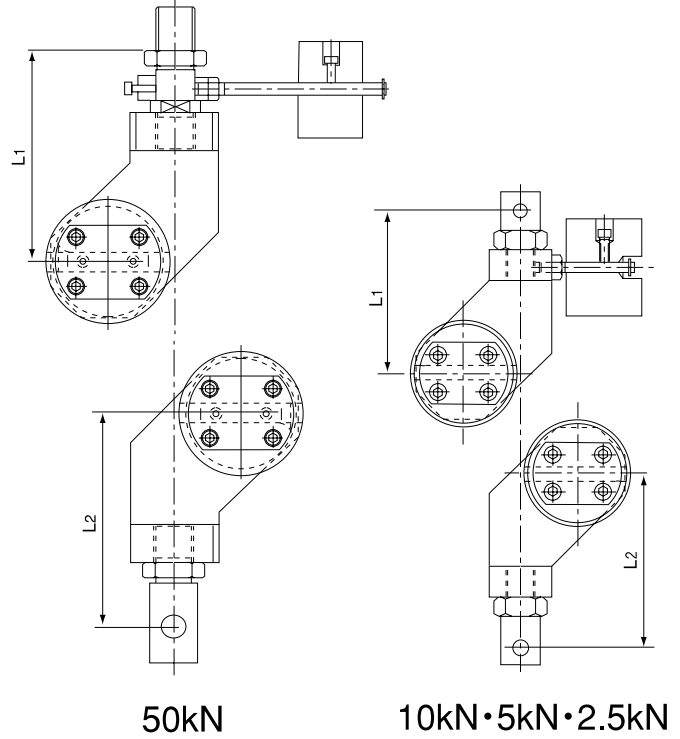
Load cell

Extensometer

## Reel jaws

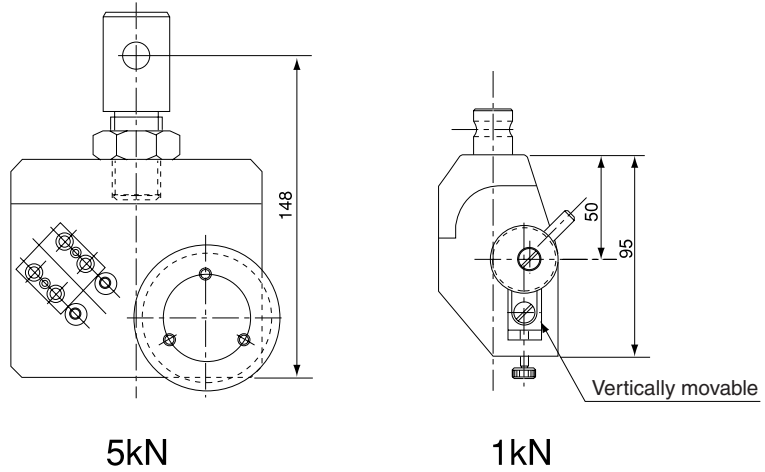
### Rope capstan jaw

Load	Size of testpiece (mm)	Product code	Size (mm)	
			L <sub>1</sub>	L <sub>2</sub>
50kN (5tf)	φ14	J-TLM-50KN	170	190
10kN (1tf)	φ12	J-TLM-10KN	121	131
5kN (500kgf)	φ6	J-TLM-5KN	133	142
2.5kN (250kgf)	φ3	J-TLM-2.5KN	71	81



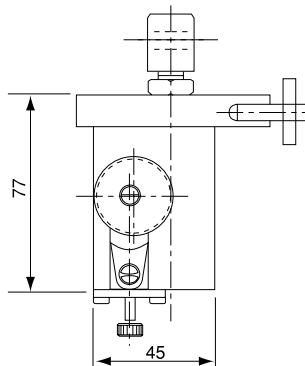
### Jaws for yarn

Load	Product code
5kN (500kgf)	J-TLM2-5KN
1kN (100kgf)	J-TLM-1KN



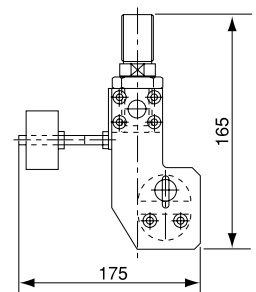
### Jaws for string

Load	Product code
50N (5kgf)	J-TLM-50N



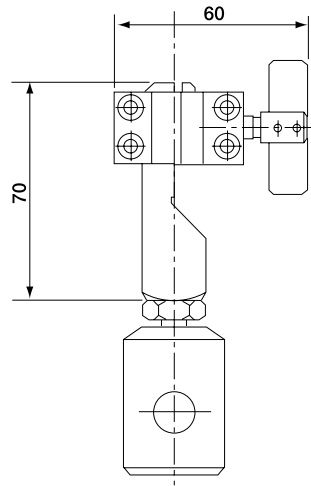
### Jaws for belt

Load	Product code
50kN (5tf)	J-ZL-50KN



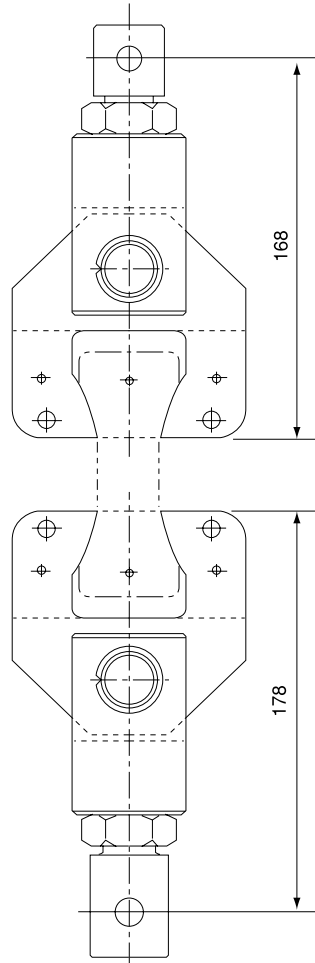
# Other jaws

## Jaws for paper



Load	Standard code	Product code
300N (30kgf)	JIS P 8113:2006	J-TWM-300N

## Jaws for molded plastic pieces



Load	Standard code	Product code
10kN (1tf)	ASTM D 651 JIS K 7113:1995	J-TPM-10KN
	JIS K 6911:1995	J-TPM1-10KN

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

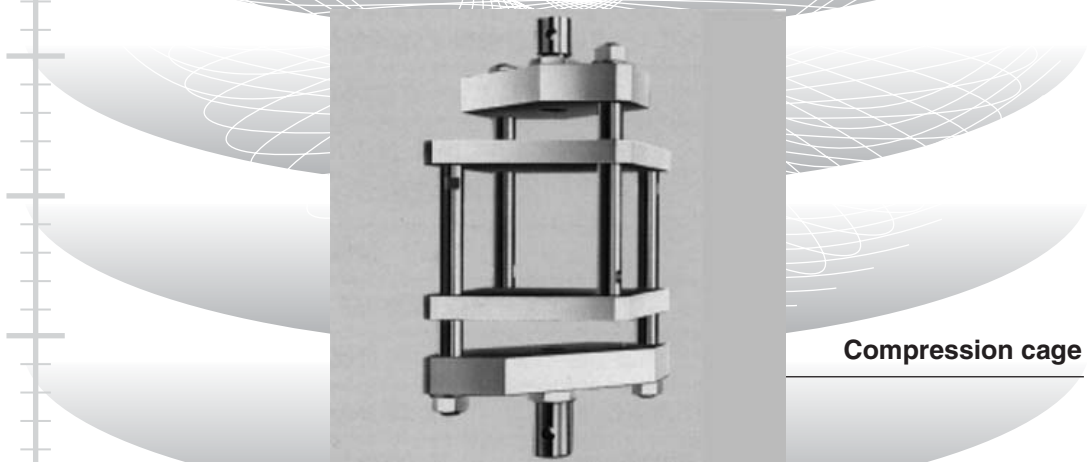
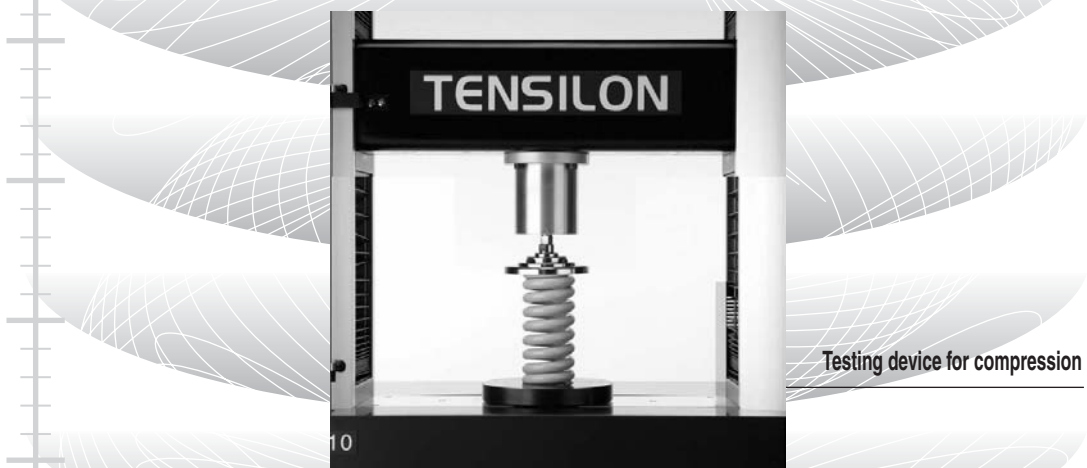
⑩ Detector & Calibration Device

Load cell

Extensometer

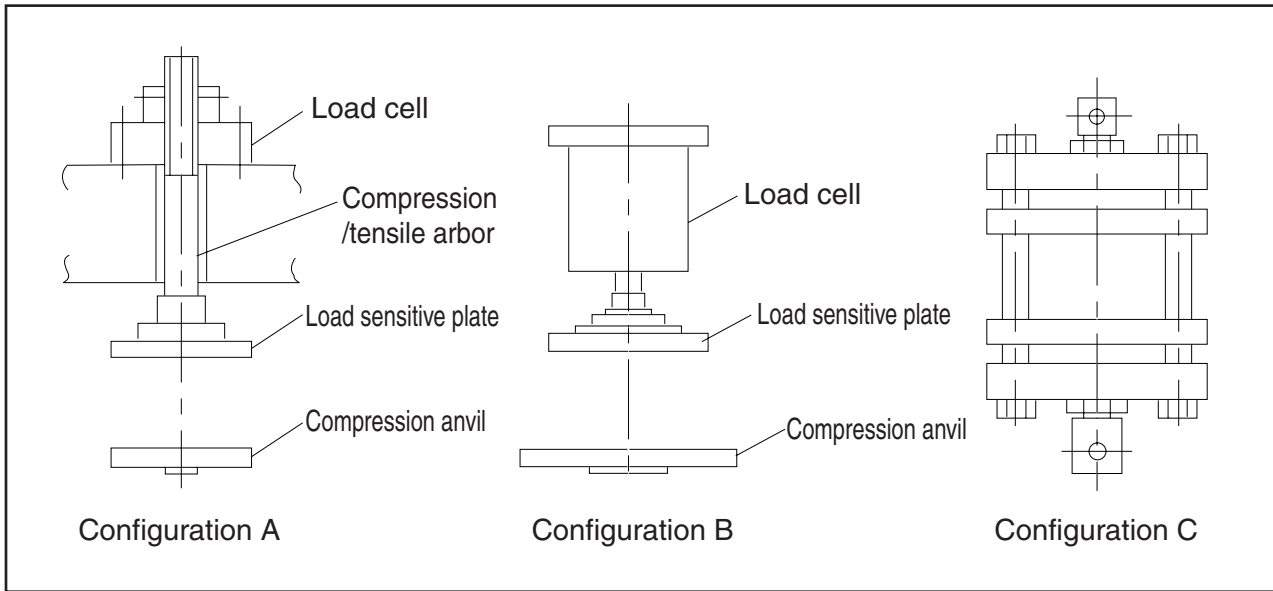
## Compression / Bending tests

Compression test and bending test are the second most standard test following tensile tests. This chapter mainly focuses on the configurations for testing devices and is limited to descriptions of standard jigs. Special testing devices specialized compression and bending tests are described in the section 3.



- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer





## Testing jigs for compression (Load sensitive plate)

Allowable max. load	300kN~250kN (30tf) (25tf)	100kN (10tf)	50kN~25kN (5tf) (2.5tf)	10kN~2.5kN (1tf) (250kgf)	1kN~250N (100kgf) (25kgf)	100N~25N (10kgf) (2.5kgf)
Type	Fixed end	Free end	Free end	Fixed end Free end	Fixed end Free end	Fixed end Free end
Production code	J-C-300KN-U	J-C-100KN-U	J-C-100KN-U	J-C1-10KN-U J-C-10KN-U	J-C1-1KN-U J-C-1KN-U	J-C1-100N-U J-C-100N-U
Sensitive area (mm)	φ150	φ150	φ150	φ100	φ100	φ100
Jigs that are needed separately	Compression / Tensile arbor J-C-300KN-A	Compression arbor J-C-100KN-A	Compression arbor J-C-100KN-A	φ30 compression adaptor (equipped with load cell)	φ30 compression adaptor (equipped with load cell)	φ30 compression adaptor (equipped with load cell)
Configuration figure	A	A	A	B	B	B
Operating temperature range	RT~+70°C					

Note: It corresponds to a suitable load cell capacity.

## Testing jigs for compression (Compression anvil)

Allowable max. load	300kN~250kN (30tf) (25tf)	100kN (10tf)	50kN~25kN (5tf) (2.5tf)	10kN~25N (1tf) (2.5kgf)
Production code	J-C-300KN-L	J-C-100KN-L	J-C-100KN-L	J-C-10KN-L
Diameter (mm)	φ150	φ150	φ150	φ150
Configuration figure	A	A	A	B
Operating temperature range	RT~+70°C			

Note: It corresponds to a suitable load cell capacity.

## Testing jigs for compression (Compression cage)

Allowable max. load	100kN (10tf)	50kN~25kN (5tf) (2.5tf)	5kN (500kgf)	1kN (100kgf)	50N (5kgf)
Production code	J-CD-100KN	J-CD-50KN	J-CD-5KN	J-CD-1KN	J-CD-50N
Sensitive area (mm)	φ60	φ110	106×168	110×150	98×110
Effective range (mm)	70	130	135	189	110
Configuration figure	C				
Operating temperature range	RT~+70°C Note 2)				

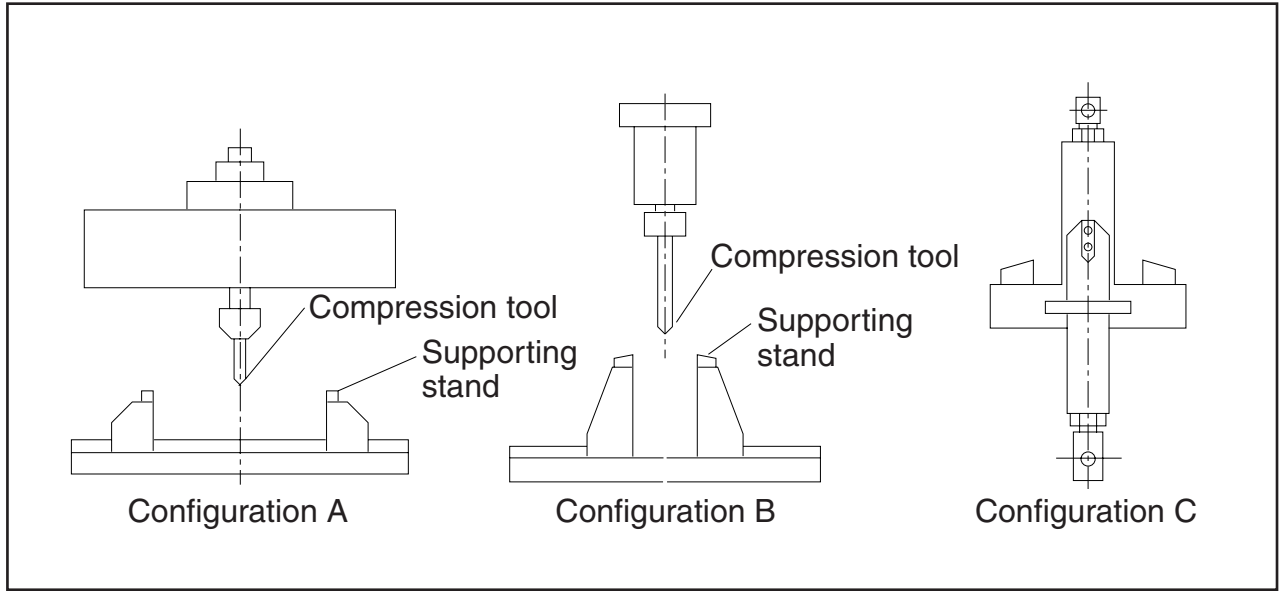
Note 1: It corresponds to a suitable load cell capacity.

Note 2: When used in a chamber, the operating temperature range is -65°C to +270°C.

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 2 Configurations of Compression / Bending Test Devices

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer



## Jigs for compression bending test (3-point bending)

- **Standard configuration : Compression tool for 3-point bending (1 set)**  
**Supporting stand and fixture for supporting stand (1 set)**

Allowable max. load	300kN (30tf) ~250kN (25tf)	100kN (10tf) ~25kN (2.5tf)	10kN (1tf) ~1kN (100kgf)
Product code (Supporting stand fixture)	J-B-300KN	J-B-100KN	J-B-10KN
Edge of compression tool $R_{W(mm)}$	R12.5×120	R5×70	R3.2×70
Edge of supporting stand $R_{W(mm)}$	R10×120	R5×70	R3.2×70
Standards	—	JIS K 7171:1994	ASTM D790
Product code (Compression tool)	J-E-07	J-E-09	J-E-02
Sensitive area (mm)	20~300	20~400	10~260
Jigs required separately	Tensile / compression arbor J-C-300KN-A	Compression arbor J-C-100KN-A	φ 30 compression adaptor (equipped with load cell)
Configuration figure	A	A	B
Operating temperature range	RT~+70°C		

Note: 1 set of compression tools for 4-point bending is necessary separately to conduct 4-point bending test.

## Jigs for tensile bending test (3-point bending)

Allowable max. load	5kN (500kgf)		1kN (100kgf)	
Product code (Jig)	J-BE-5KN		J-BE-1KN	
Edge of compression tool $R_{W(mm)}$	R5×28	R3.2×28	R5×28	R3.2×28
Edge of supporting stand $R_{W(mm)}$	R5×28	R3.2×28	R5×28	R3.2×28
Standards	JIS K 7171:1994	ASTM D790	JIS K 7171:1994	ASTM D790
Product code (Compression tool)	J-E-10	J-E-06	J-E-10	J-E-06
Sensitive area (mm)	16~120			
Configuration figure	C			
Operating temperature range	RT~+70°C (Note)			

Note: Operating temperature range is -65°C to +270°C when used in chamber. J-BE-5KN can be used up to 10kN.

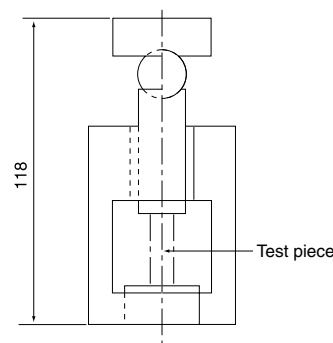
# Testing jigs for polymer

In order to make efficient use of TENSILON for various materials, it is necessary to have the testing device (jig) that is analogous to the purpose of each test. In addition to standard jigs based on JIS or IS standards, as a leading testing machine manufacturer we have a large amount of product drawings that allow us to also customize jigs based on the customer's individual application needs.

## Compression for plastics

Product code	J-CP-50KN		
Max. load	50kN (5tf)		
Test material	Molded material	Plastic laminate	Normal plastic
Pressure face diameter (mm)	φ20		
Testpiece size (mm)	(W) (D) (H) 12.7×12.7×25	(W) (D) (H) 13×13×25	Cylinder φ12×30H Square 10.4×10.4×30H
Other necessary jigs	Load sensitive plate and compression anvil (Note)		
Standards	JIS K 6911:1995, ASTM D 695		JIS K 7208:1995
Operating temperature limit	-10~+100°C		

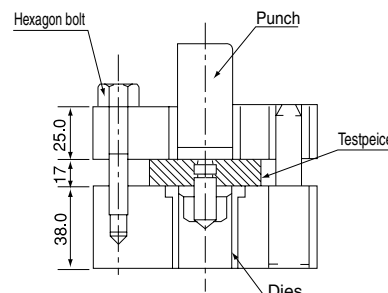
Note: Please see page 23 for compression jigs.



## Shear for plastics

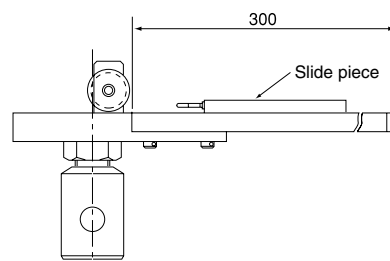
Product code	J-SP-50KN		
Max load	50kN (5tf)		
Punch diameter (mm)	φ25.4		
Testpiece size (mm)	φ50 or □50×Thickness 1~12.5		
Other necessary jigs	Load sensitive plate and compression anvil (Note)		
Standards	JIS K 7214:1985, ASTM D 732		
Operating temperature range	-10~+100°C		

Note: Please see page 23 for compression jigs.



## Friction coefficient for plastics

Product code	J-PZ2-50N	J-PZ1-50N
Max load	50N (5kgf)	
Test material	Plastic film or sheet	
Slide piece size (mm)	□63×t 6.4	□63.5×t 6.4
Slide piece weight (g)	200±2	200±5
Standards	JIS K 7125:1999	ASTM D 1894
Operating temperature range	RT~+70°C	



- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 3 Testing Jigs for Polymer

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

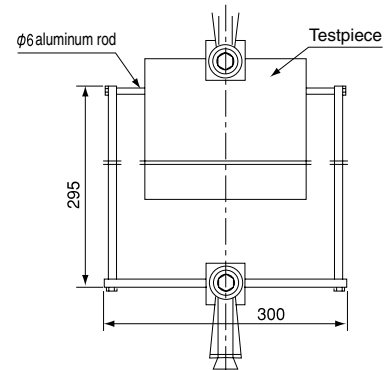
⑩ Detector & Calibration Device

Load cell

Extensometer

## Blocking of Plastic Film

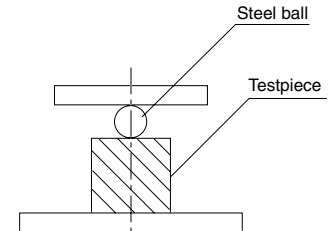
Product code	J-PZ7-50N
Max load	50N (5kgf)
Test material	Plastic films, sheet
Rod diameter (mm)	φ6 (Aluminium rod)
Testpiece size (mm)	W200 × L250 or larger
Other necessary jigs	Screw action jaw (Note)
Standards	ASTM D 1893
Operating temperature range	-10~+100°C



Note: Please see page 10 for screw action jaws.

## Cleavage

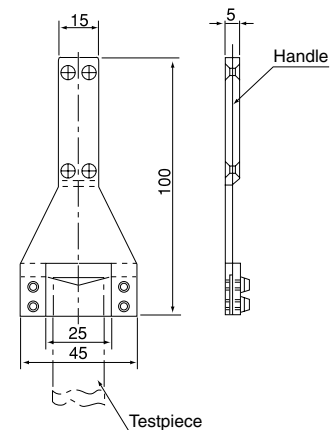
Product code	J-CP-5KN
Max load	5kN (500kgf)
Test material	Plastic laminates
Steel ball diameter (mm)	φ10
Testpiece size (mm)	W200 × L250 × T13
Other necessary jigs	Fixed load sensitive plate and compression anvil (Note)
Standards	JIS K 6911:1995
Operating temperature range	-10~+100°C



Note: Please see page 23 for compression test jigs.

## Initial tear strength

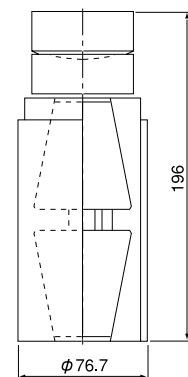
Product code	J-SP-500N
Max load	500N (50kgf)
Test material	Polyester film
Testpiece size (mm)	W20 × L250
V-cutting board	T1.0(mm) V-cutting edge angle 150°
Other necessary jigs	Screw action jaw (Note)
Standards	JIS C 2317:1999, JIS C 2318:1997, JIS C 2111:2002
Operating temperature range	-10~+100°C



Note: Please see page 23 for compression test jigs.

## CFRP vertical compression (Circular cone)

Product code	J-CP2-50KN
Max load	50kN (5tf)
Test material	Carbon fiber reinforced plastic
Testpiece size (mm)	W6.5 × L134 × T2
Other necessary jigs	Load sensitive plate and compression anvil (Note)
Standards	JIS K 7076:1991
Operating temperature range	-10~+100°C

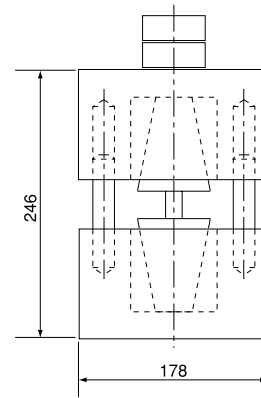


Note: Please see page 23 for compression test jigs.

### CFRP vertical compression (Pyramid cone)

Product code	J-CP1-50KN
Max load	50kN (5tf)
Test material	Carbon fiber reinforced plastic
Testpiece size (mm)	W6.5 × L134 × T2
Other necessary jigs	Load sensitive plate and compression anvil (Note)
Standards	JIS K 7076:1991
Operating temperature range	-10~+100°C

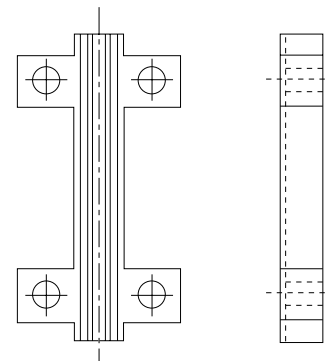
Note: Please see page 23 for compression test jigs.



### Compression for plastic laminates

Product code	J-CP1-5KN
Max load	5kN (500kgf)
Test material	Plastic laminates
Testpiece size (mm)	W19 × L77
Other necessary jigs	Fixed load sensitive plate and compression anvil (Note)
Standards	JIS K 7076:1991, JIS K 7208:1995
Operating temperature range	-10~+100°C

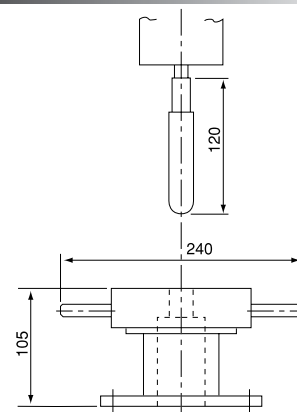
Note: Please see page 23 for compression test jigs.



## Testing jigs for textile

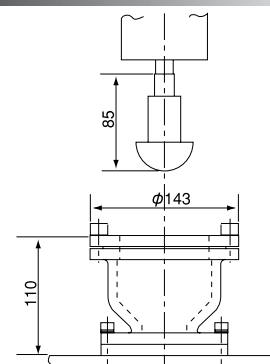
### Burst test

Product code	J-CL-5KN	J-CL-1KN
Max load	5kN (500kgf)	1kN (100kgf)
Test material	Cloth, paper, plastic sheet	
Diameter of ring (mm)	φ44.45	
Edge of puncher (mm)	R12.5	
Standards	JIS L 1018:1999, JIS L 1096:1999, ASTM D 76	
Operating temperature range	RT~+70°C	



### Expansion test

Product code	J-CL-50N
Max load	50N (5kgf)
Test material	Fabric, Cloth, Sheet
Diameter of ring (mm)	φ80
Edge of puncher (mm)	R25, R28
Operating temperature range	RT~+70°C



- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 4 Testing Jigs for Textile

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

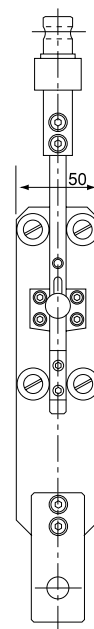
⑩ Detector & Calibration Device

Load cell

Extensometer

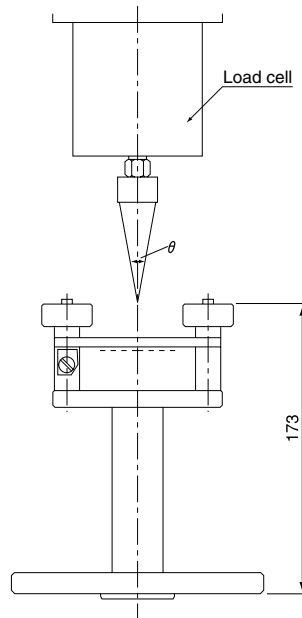
## Textile shearing test

Product code	J-SL-1KN
Max load	1kN (100kgf)
Test material	Bundle of fiber
Operating temperature range	RT~+70°C



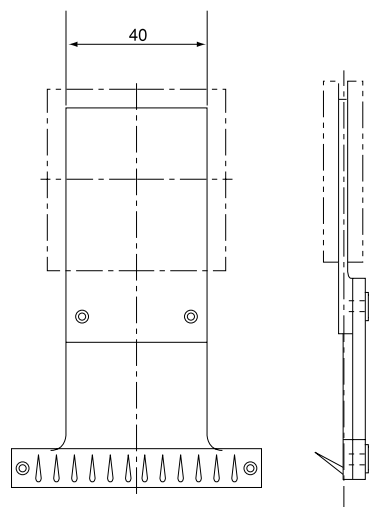
## Cloth tearing test

Product code	J-CL1-1KN
Max load	1kN (100kgf)
Edge of puncher	5°, 10°, 15°, 20°
Operating temperature range	RT~+70°C



## Slide-slip resistance

Product code	J-SL-250N
Max. load	250N (25kgf)
Testpiece size (mm)	W50 × L150
Pin size (mm)	φ0.6~φ1.0 × L8.0
Number of pins	12 pcs. (Pitch 5 mm)
Other necessary jigs	Screw action jaw (Note)
Standards	JIS L 1096:1999
Operating temperature range	RT~+70°C

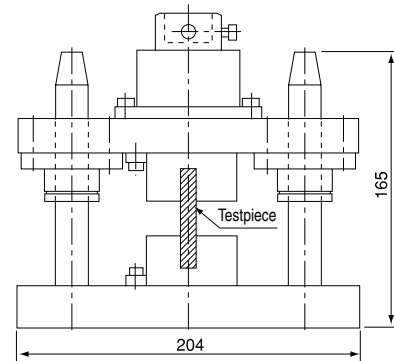


Note: Please see page 23 for screw action jaws.

# Testing jigs for paper and pulp

## Vertical compression

Product code	J-CW2-1KN
Max load	1kN (100kgf)
Test material	Cardboard and pulp
Testpiece size (mm)	W100×H60×less than T10
Standards	JIS Z 0401:1985
Operating temperature range	RT~+70°C

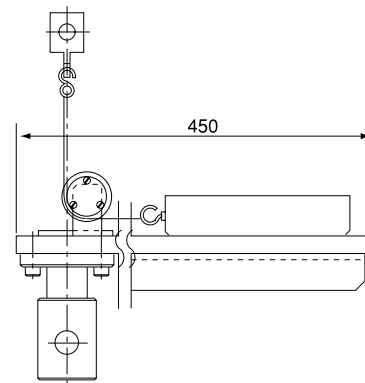


## Compression of Cardboard box

Product code	J-CW-50KN
Max load	50kN (5tf)
Testpiece size (mm)	□500
Standards	JIS Z 1507:1989
Operating temperature range	RT~+70°C

## Friction coefficient for paper

Product code	J-PZ3-50N
Max load	50N (5kgf)
Testpiece size (mm)	W100×L250
Slide plate size (mm)	W60×L100×H21
Slide plate weight	1kg±10g
Standards	JIS P 8147:1994, TAPPI No.30-79
Operating temperature range	RT~+70°C



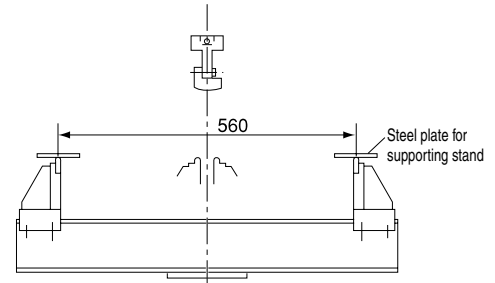
- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

## Testing jigs for timber

### 3-point bending of timber

Product code	J-BA-5KN
Max load	5kN (500kgf)
Edge of compression tool <sup>R×W</sup> <sub>(mm)</sub>	R75×60
Edge of supporting stand <sup>R×W</sup> <sub>(mm)</sub>	R5×70 (Note)
Supporting stand range (mm)	40~560
Other necessary jigs	30 φ compression cell support (provided with load cell)
Standards	JIS Z 2101:1994
Operating temperature range	RT~+70°C

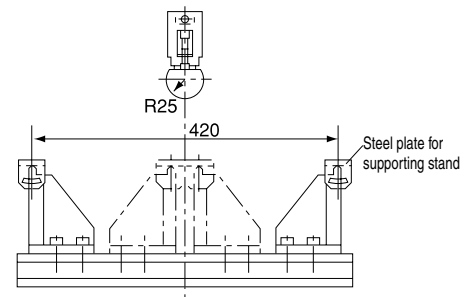
Note: 2 steel plates for supporting stand (80×60×T4 mm) are provided.



### 3-point bending of house board

Product code	J-BA-10KN
Max. load	10kN (1tf)
Edge of compression tool <sup>R×W</sup> <sub>(mm)</sub>	R25×405
Edge of supporting stand <sup>R×W</sup> <sub>(mm)</sub>	R5×405 (Note)
Supporting stand range (mm)	40~420
Other necessary jigs	30 φ compression cell support (provided with load cell)
Standards	JIS A 1408:2001
Operating temperature range	RT~+70°C

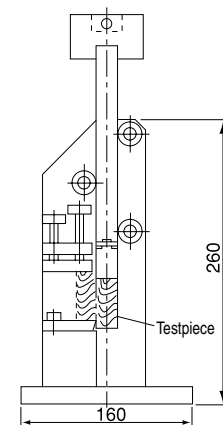
Note: 2 steel plates for supporting stand (40×405×T10 mm) are provided.



### Shearing for timber

Product code	J-SA-5KN
Max load	5kN (500kgf)
Other necessary jigs	30 φ compression cell support (provided with load cell)
Standards	JIS Z 2101:1994
Operating temperature range	RT~+70°C

Note: Other standards: JIS K 6852, 6804, ASTM D 905



① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

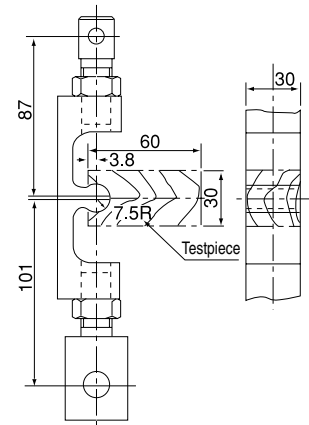
Load cell

Extensometer



## Timber Cleavage

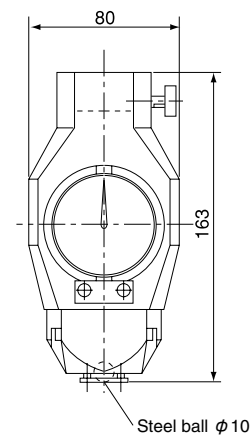
Product code	J-PA-1KN	
Max load	1kN (100kgf)	
Loading part	Radius (mm)	7.5
	Width (mm)	30
Standards	JIS Z 2101:1994	
Operating temperature limit	RT~+70°C	



## Timber Hardness

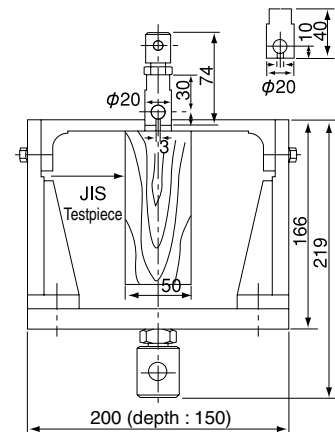
Product code	J-ZA-5KN	
Max load	5kN (500kgf)	
Testpiece size (mm)	□40×L40	
Steel ball diameter	10mm	
Other necessary jigs	30φ compression cell support (provided with load cell) and compression anvil (Note)	
Standards	JIS Z 2101:1994	
Operating temperature limit	RT~+70°C	

Note: Please see page 23 for compression test jigs.



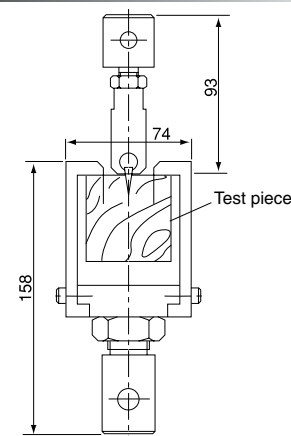
## Nail drawing resistance

Product code	J-TAM-1KN	
Max load	1kN (100kgf)	
Timber size (mm)	□50×L120	
Nail type	N45 (φ2.45×45mm)	
Standards	JIS A 5905:2003, ASTM D 1037	
Operating temperature limit	RT~+70°C	



## Wood screw withdrawal strength

Product code	J-TAM-5KN	
Max load	5kN (500kgf)	
Wood screw size	φ2.7×16mm(JIS B1112)	
Standards	JIS A 5905:2003	
Operating temperature limit	RT~+70°C	



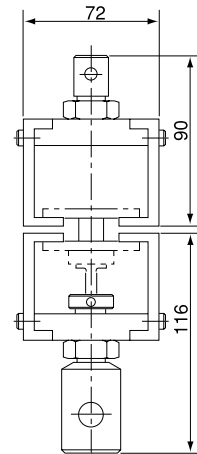
- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

## Testing jigs for debonding

### Adhesive strength for sealing material

Product code	J-PZ5-1KN
Max load	1kN (100kgf)
Test material	Sealing materials for Construction
Testpiece size (mm)	W12 × L50 × H12
Attached sample	Aluminum/Mortar/Glass plate
Size of attached sample	□50×T5 or 25
Standards	JIS A 5758:1968
Operating temperature range	RT~+70°C

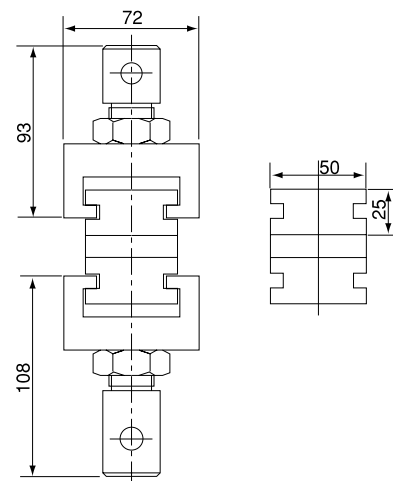
Note: Only a set of aluminum plates will be provided as an attached sample.



### Adhesive strength of particle board

Product code	J-PZ5-5KN
Max load	5kN (500kgf)
Test material	Particle board
Testpiece size (mm)	□50
Attached sample	Copper or aluminum block
Standards	JIS A 5905:2003
Operation temperature range	RT~+70°C

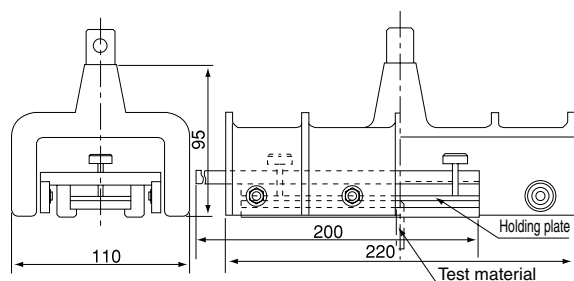
Note: Only a set of aluminum blocks will be provided as an attached sample.



### 90-degree peeling

Product code	J-PZ2-1KN
Max load	1kN (100kgf)
Test material	Plastics, film, rubber
Test material size	W30×L150
Other necessary jigs	Screw action jaw (Note)
Standards	JIS K 6854:1994
Operating temperature range	RT~+70°C

Note: Please see page 10 for screw action jaws.



① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

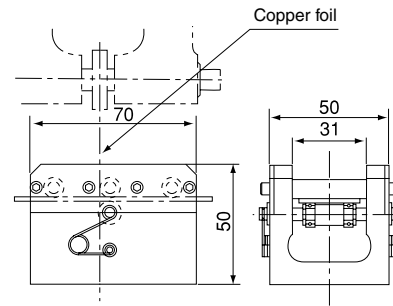
Load cell

Extensometer

## 90-degree peeling for printed boards

Product code	J-PZ-200N
Max load	200N (20kgf)
Other necessary jigs	Screw action jaws (Note)
Standards	JIS C 6481:1996
Operating temperature range	RT~+70°C

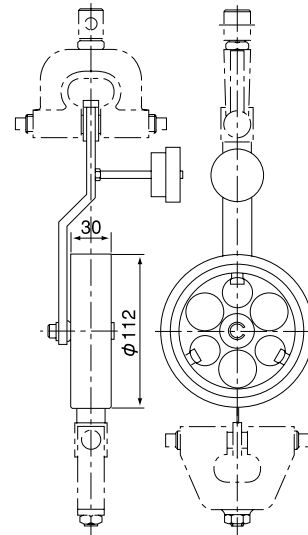
Note: Please see page 10 for screw action jaws.



## Peeling for Sellotape drum

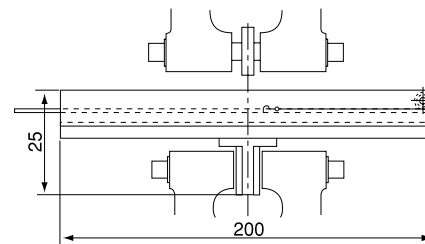
Product code	J-PZ3-1KN
Max load	1kN (100kgf)
Other necessary jigs	Screw action jaw (Note)
Drum size (mm)	φ 112×W30
Operating temperature range	RT~+70°C

Note: Please see page 10 for screw action jaws.



## 90-degree peeling for adhesive tape (jig)

Product code	J-PZ1-1KN
Max load	1kN (100kgf)
Other necessary jigs	Screw action jaw (Note)
Testpiece size (mm)	Max width 45
Standards	JIS Z 0237:1994, ASTM D 1781
Operating temperature range	RT~+70°C



Product code	J-PZ10-1KN
Max load	1kN (100kgf)
Other necessary jigs	Screw action jaw (Note)
Testpiece size (mm)	Max width 45
Standards	JIS Z 0237:2000, ASTM D 1781
Operating temperature range	RT~+70°C

Note: Please see page 10 for screw action jaws.

Note: Additional jigs are needed depending on the model.

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 7 Testing Jigs for Debonding

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

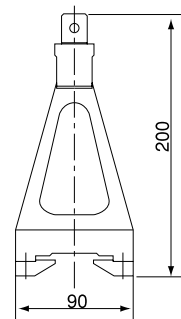
Load cell

Extensometer

## 90-degree peeling for rubber

Product code	J-PZ-1KN
Max load	1kN (100kgf)
Other necessary jigs	Screw action jaw (Note)
Testpiece size (mm)	W25.4×L127×T5.37
Supporting plate size (mm)	W25.4×L60.3
Standards	JIS K 6256:2006
Operating temperature range	RT~+70°C

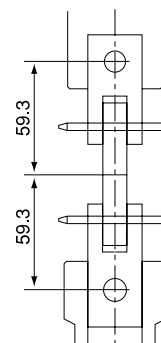
Note: Please see page 10 for screw action jaws.



## Tensile bond strength

Product code	J-PZ-2.5KN
Max load	2.5kN (250kgf)
Test material	Bond
Size of attached sample (mm)	φ 12.7 or □ 12.7×L38
Standards	JIS K 6849:1994
Operating temperature range	RT~+70°C

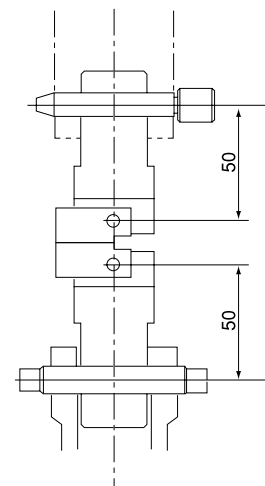
Note: Only a set of copper pieces will be provided as an attached sample.



## Splitting strength

Product code	J-PZ6-1KN
Max load	1kN (100kgf)
Test material	Bond
Size of attached sample	Joint face □ 25
Standards	JIS K 6853:1994
Operating temperature range	RT~+70°C

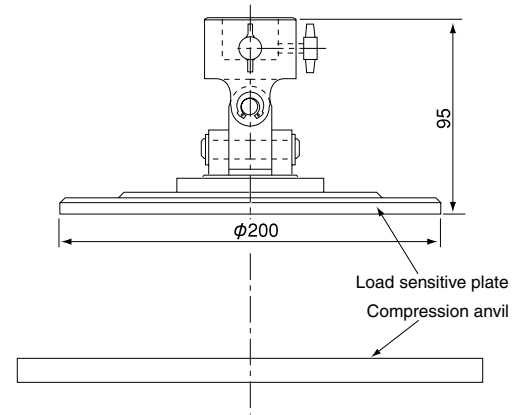
Note: Only 1 set of copper attachment jointing piece is provided as a sample.



# Other special testing jigs

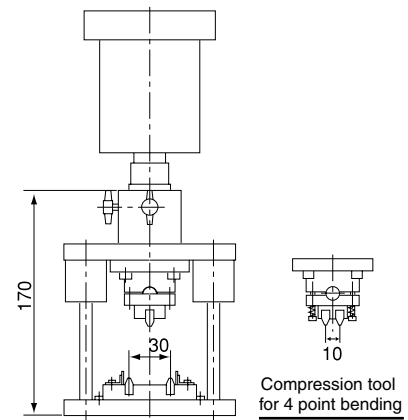
## Compression of Urethane foam

Product code	J-CG-1KN	
Max load	1kN (100kgf)	
Other necessary jigs	φ30 compression cell support (provided with load cell)	
Load sensitive plate size (mm)	φ200	
Compression anvil size	Shape (mm)	□350
	Air vent (mm)	φ6×center distance 19
Standards	JIS K 6382:1995	
Operating temperature range	RT~+70°C	



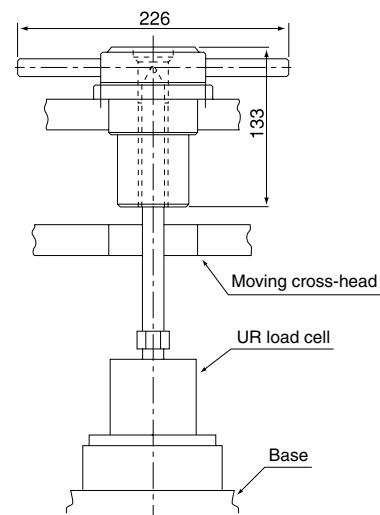
## 3, 4-point bending of Ceramics

Product code	J-BR-5KN	
Max load	5kN (500kgf)	
Other necessary jigs	φ30 compression cell support (provided with load cell)	
Edge of compression tool for 3 point bending (mm)	R2×W10	
Edge of compression tool for 4 point bending (mm)	R0.5×W10	
Edge of supporting stand (mm)	R2×W10	
Supporting stand range (mm)	30	
Compression tool range for 4 point bending (mm)	10	
Standards	JIS R 1601:1995	
Operating temperature range	RT~+70°C	



## Leather ball bursting

Product code	J-CZ-1KN	
Max load	1kN (100kgf)	
Edge of punch (mm)	R3	
Standards	JIS K 6548:1995 JIS K 6550:1994	
Operating temperature range	RT~+70°C	



- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 8 Other Special Testing Jigs

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

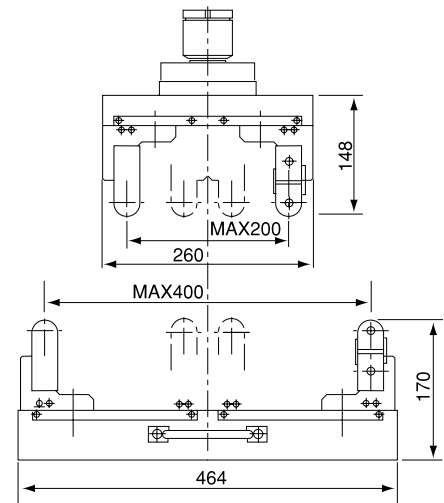
Load cell

Extensometer

## 4-point bending for concrete

Product code	J-BA-100KN
Max load	100kN (10tf)
Edge of compression tool (mm)	R15×W120
Edge of supporting stand (mm)	R15×W120
Compression tool range (mm)	60~200
Supporting stand range (mm)	60~400
Other necessary jigs	Arbor (Note)
Standards	JIS A 1106:2006
Operating temperature range	RT~+70°C

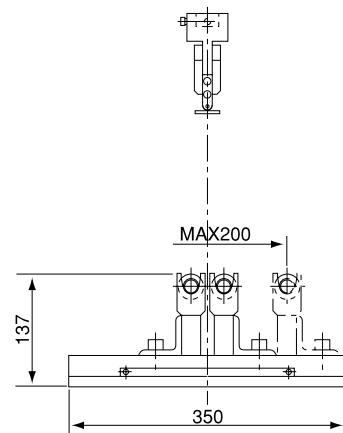
Note: Please see page 10 for screw action jaws.



## 3-point bending for tiles

Product code	J-BAI-5KN	
Max load	5kN (500kgf)	
Edge of compression tool (mm)	For roof tile	For normal tile
	R15×W422	R15×W410
Edge of supporting stand (mm)	R5×W200	R5×W208
Supporting stand range (mm)	40~200	
Other necessary jigs	φ30 compression cell support (provided with load cell)	
Standards	JIS A 5208:1996	JIS A 5209:1994
Operating temperature range	RT~+70°C	

Note: Please refer to compression test jigs on P23.

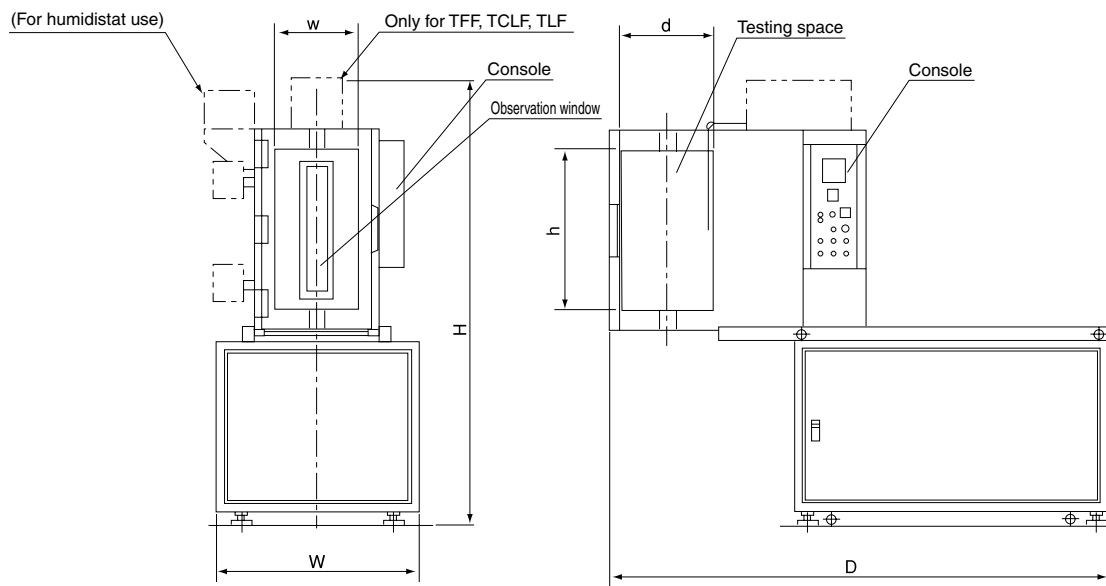


# Jigs for Thermostatic chamber test

Upon understanding the performance capabilities of the material, characteristics tests of the material in temperature environments are very important. The user can choose an appropriate device from our wide range of constant temperature chambers, or constant temperature and humidity chambers to match the test temperature requirement in accordance with each TENSILON model.

## Constant temperature (constant humidity) chamber

- **Standard configuration :** Main body of constant temperature (humidity) chamber (1 set)  
 Load cell spacer: 2 types  
 Heat shield panel: 1 piece  
 Tray for droplet: 1 piece (Not provided for TKC)



Type	Operating temperature range	Reference
TKC	RT~+270°C	
TLF	-35°C~+270°C	Cooling using refrigerator
TCF	-60°C~+270°C	Cooling using liquid CO <sub>2</sub>
TCLF	-60°C~+270°C	Cooling using refrigerator & liquid CO <sub>2</sub>
TLF <sub>2</sub>	-65°C~+250°C	2-step refrigerator
TNF	-150°C~+250°C	Cooling using liquid N <sub>2</sub>
TLF-HS	-35°C~+270°C	Cooling using refrigerator with humidity adjustment

### Note 1:

Water-cooling system should be used as a standard refrigerator. Water-cooling system is used for TLF and TLF-HS. Please prepare water supply and drainage system facilities.

### Water supply specifications

Water temperature is 25°C or lower (city water): 15 l/min of water  
 Water temperature is 34°C or lower (cooling tower): 25 l/min of water  
 Water pressure is 0.2 MPa or greater

### Note 2:

Please prepare separate facilities for LCO<sub>2</sub> and different LN<sub>2</sub> cylinder models (siphon compatible)

### Note 3:

Please prepare purified water or equivalent water as humidity generating water for TLF-HS.

## Special requirements

1. When using non-contact extensometers, partial modifications are necessary. Please contact us for inquiries
2. Depending on your request, we can offer a refrigerator with an air-cooling system.
3. We also offer other environmental test (dipping machines, high-temperature chambers, etc). Please contact us for inquiries

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper &amp; Pulp Test

⑥ Wood Material

⑦ Peeling &amp; Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector &amp; Calibration Device

Load cell

Extensometer

# 9 Jigs for Temperature Chamber Test

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

## RTF, RTG-1210·1225·1250·1310

Type	TKC-R3T-F	TLF-R3T-F-A	TCF-R3T-F	TCLF-R3T-F-A	TLF <sub>2</sub> -R3T-F-W	TNF-R3T-F
Product code	T-TKC-R3T-F	T-TLF-R3T-F-A	T-TCF-R3T-F	T-TCLF-R3T-F-A	T-TLF <sub>2</sub> -R3T-F-W	T-TNF-R3T-F
External dimension (W×H×D)mm	600×1540×1490	800×1740×1760	600×1540×1490	600×1740×1760	1250×1740×1760	600×1540×1490
Internal dimension (W×H×D)mm	220×600×260					
Temperature range	RT~+270°C	-35°C~+270°C	-60°C~+270°C	-60°C~+270°C	-65°C~+250°C	-150°C~+250°C
Heating/ Cooling system	High temperature	Circulating hot air oven				
	Low temperature	—————	Cooling using refrigerator	Cooling using liquid CO <sub>2</sub>	Cooling using refrigerator & liquid CO <sub>2</sub>	2-step refrigerator
Control system	PID ON-OFF control					
Attained temperature /time	Heating up	+25°C to +270°C within 60 min				
	Cooling down	—————	+25°C to -35°C within 90 min	+25°C to -60°C within 30 min	+25°C to -35°C within 90 min -35°C to -60°C within 20 min	+25°C to -35°C within 90 min
Temperature distribution	±2°C (Operating temperature range Testing Space Center φ 100×height 150mm)					
Power supply	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 7.0kW	200V AC φ3 approx. 2.7kW

## RTF-1325, RTF-1350

Type	TKC-R4T-F	TLF-R4T-F-A	TCF-R4T-F	TCLF-R4T-F-A	TLF <sub>2</sub> -R4T-F-W	TNF-R4T-F
Product code	T-TKC-R4T-F	T-TLF-R4T-F-A	T-TCF-R4T-F	T-TCLF-R4T-F-A	T-TLF <sub>2</sub> -R4T-F-W	T-TNF-R4T-F
External dimension (W×H×D)mm	800×1495×1980	800×1695×1980	800×1495×1980	800×1694×1980	1250×1695×1980	800×1495×1980
Internal dimension (W×H×D)mm	330×550×360					
Temperature range	RT~+270°C	-35°C~+270°C	-60°C~+270°C	-60°C~+270°C	-65°C~+250°C	-150°C~+250°C
Heating/ Cooling system	High temperature	Circulating hot air oven				
	Low temperature	—————	Cooling using refrigerator	Cooling using liquid CO <sub>2</sub>	Cooling using refrigerator & liquid CO <sub>2</sub>	2-step refrigerator
Control system	PID ON-OFF control					
Attained temperature /time	Heating up	+25°C to +270°C within 60 min				
	Cooling down	—————	+25°C to -35°C within 90 min	+25°C to -60°C within 30 min	+25°C to -35°C within 90 min -35°C to -60°C within 20 min	+25°C to -35°C within 90 min
Temperature distribution	±2°C (Operating temperature range Testing Space Center φ 100×height 150mm)					
Power supply	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 7.0kW	200V AC φ3 approx. 2.7kW

## RTF-2410, RTF-2325, RTF-2350

Type	TKC-U4-F	TLF-U4-F-A	TCF-U4-F	TCLF-U4-F-A	TLF <sub>2</sub> -U4-F-W	TNF-U4-F
Product code	T-TKC-U4-F	T-TLF-U4-F-A	T-TCF-U4-F	T-TCLF-U4-F-A	T-TLF <sub>2</sub> -U4-F-W	T-TNF-U4-F
External dimension (W×H×D)mm	800×1575×1980	800×1775×1980	800×1575×1980	800×1775×1980	1600×1775×1980	800×1575×1980
Internal dimension (W×H×D)mm	330×630×360					
Temperature range	RT~+270°C	-35°C~+270°C	-60°C~+270°C	-60°C~+270°C	-65°C~+250°C	-150°C~+250°C
Heating/ Cooling system	High temperature	Circulating hot air oven				
	Low temperature	—————	Cooling using refrigerator	Cooling using liquid CO <sub>2</sub>	Cooling using refrigerator & liquid CO <sub>2</sub>	2-step refrigerator
Control system	PID ON-OFF control					
Attained temperature /time	Heating up	+25°C to +270°C within 60 min				
	Cooling down	—————	+25°C to -35°C within 90 min	+25°C to -60°C within 30 min	+25°C to -35°C within 90 min -35°C to -60°C within 20 min	+25°C to -35°C within 90 min
Temperature distribution	±2°C (Operating temperature range Testing Space Center φ 100×height 150mm)					
Power supply	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 7.0kW	200V AC φ3 approx. 2.7kW



## RTF-2425, RTF-2450

Type	TKC-U5-F	TLF-U5-F-A	TCF-U5-F	TCLF-U5-F-A	TLF <sub>2</sub> -U5-F-W	TNF-U5-F
Product code	T-TKC-U5-A	T-TLF-U5-F-A	T-TCF-U5-F	T-TCLF-U5-F-A	T-TLF <sub>2</sub> -U5-F-W	T-TNF-U5-F
External dimension (W×H×D)mm	900×1625×2290	900×1825×2290	900×1625×2290	900×1825×2290	1600×1825×2290	900×1625×2290
Internal dimension (W×H×D)mm	330×680×500					
Temperature range	RT~+270°C	-35°C~+270°C	-60°C~+270°C	-60°C~+270°C	-65°C~+250°C	-150°C~+250°C
Heating/ Cooling system	High temperature	Circulating hot air oven				
	Low temperature	—————	Cooling using refrigerator	Cooling using liquid CO <sub>2</sub>	Cooling using refrigerator & liquid CO <sub>2</sub>	2-step refrigerator
Control system	PID ON-OFF control					
Attained temperature /time	Heating up	+25°C to +270°C within 60 min				
	Cooling down	—————	+25°C to -35°C within 90 min	+25°C to -60°C within 30 min	+25°C to -35°C within 90 min -35°C to -60°C within 20 min	+25°C to -35°C within 90 min
Temperature distribution	±2°C (Operating temperature range Testing Space Center φ100×height 150mm)					
Power supply	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 2.7kW	200V AC φ3 approx. 5.5kW	200V AC φ3 approx. 7.0kW	200V AC φ3 approx. 2.7kW

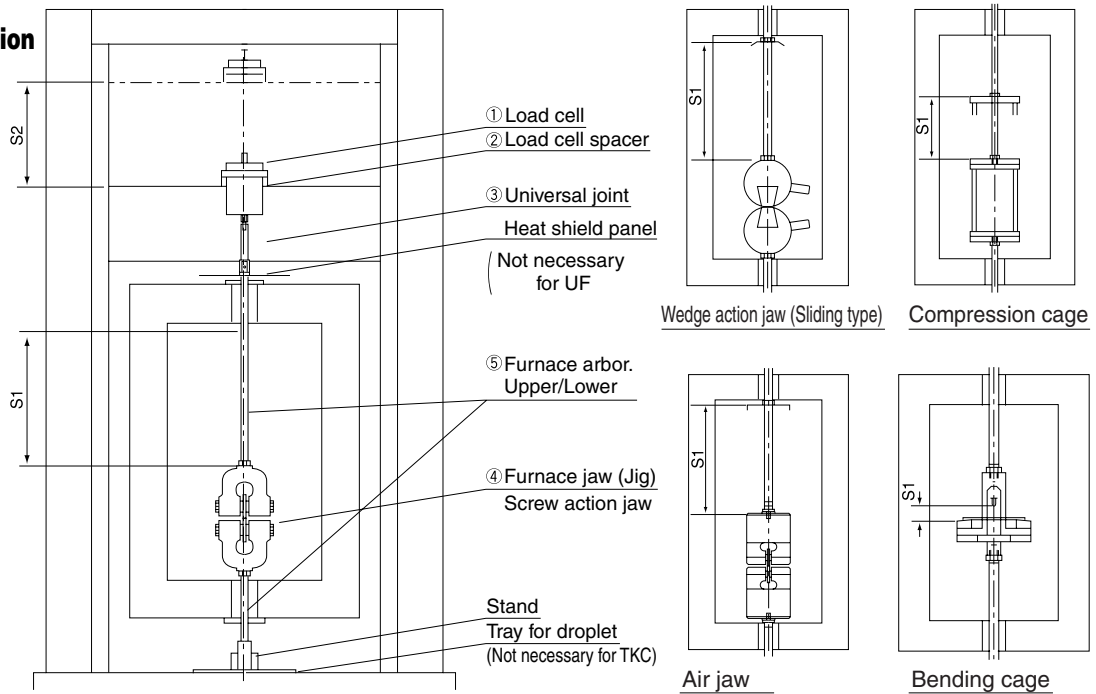
## Constant temperature and constant humidity chamber

Type	TLF-R3T-C-HS-W	TLF-R4T-C-HS-W	TLF-U3-A-HS-W	TLF-U4-A-HS-W	TLF-U5-A-HS-W
Product code	T-TLF-R3T-C-HS-W	T-TLF-R4T-C-HS-W	OT-TLF-U3-A-HS-W	OT-TLF-U4-A-HS-W	OT-TLF-U5-A-HS-W
適応機種	RTF-1210~1310,RTG-1210~1310	RTF-1325/1350	RTF-2325/2350	RTF-2410	RTF-2425/2430
External dimension (W×H×D)mm	800×1740×1760	800×1695×1980	800×1695×1980	800×1775×1980	900×1825×2290
Internal dimension (W×H×D)mm	220×600×260	330×550×360	330×550×360	330×630×360	330×680×500
Temperature range	-35°C~+270°C				
Humidity range	30%RH to 95%RH (at +25°C to +85°C. Only within the range where relative humidity can be controlled.)				
Heating/ Cooling system	High temperature	Circulating hot air oven			
	Low temperature	Circulating cold air oven: Water-cooling compact refrigerator			
Control system	PID temperature and humidity control				
Attained temperature /time	Heating up	+25°C to +270°C within 60 min			
	Cooling down	+25°C to -35°C within 90 min			
Temperature distribution	±2°C (Operating temperature range Testing Space Center φ100×height 150mm)				
Temperature/humidity distribution	±2°C ±5°C RH (Operating temperature and humidity limit Testing space Center φ100×height 150mm)				
Power supply	200V AC. φ3. Approx. 9kW				

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

## Configuration of chamber test devices

### ● Configuration figure



Note 1: Each jaw face, compression tool and supporting stand is an extra-cost option.

Note 2: The operating temperature range for each jig is described in specifications 1-3 (Jaws), 2-1-2(Compression cage) and 2-2-2(Bending cage).

Note 3: We offer a thermostatic chamber to conduct tensile test in the area above the moving crosshead. Please contact us for inquiries

Note 4: Effective stroke S is the smaller in diameter of S1 or S2.

Note 5: We offer other special jigs not listed here. Please contact us for inquiries

### R3T series (TKC, TCF, TLF, TCLF, TLF<sub>2</sub>, TNF, TLF-HS)

Jaw (Jig) type	Screw action jaw				Wedge action jaw (Sliding type)		
Load	50N (25kgf)	250N (25kgf)	1kN (100kgf)	5kN (500kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-250N-D	UR-1KN-D	UR-5KN-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	H=50			H=100	H=100	H=100	
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-1KN	J-UF-5KN	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig)	R-R3T-50N	R-R3T-250N	R-R3T-1KN	R-R3T-5KN	R1-R3T-1KN	R1-R3T-5KN	R-R3T-10KN
⑤ Furnace arbor. Upper/Lower							
Effective stroke S mm	305	300	305	260	305	260	235

Jaw (Jig) type	Air jaw				
Load	50N (5kgf)	500N (50kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-500N-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	H=50			H=110	
③ Universal joint	J-UF-50N	J-UF-500N	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig)	RA-R3T-50N	RA-R3T-500N	RA-R3T-1KN	RA-R3T-5KN	RA-R3T-10KN
⑤ Furnace arbor. Upper/Lower					
Effective stroke S mm	290	285	230	150	120

Jaw (Jig) type	Compression cage			Bending cage	
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-1KN-D	UR-5KN-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=50	H=100		H=50	H=100
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-5KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig)	RC-R3T-50N	RC-R3T-1KN	RC-R3T-5KN	RBE-R3T-1KN	RBE-R3T-5KN
⑤ Furnace arbor. Upper/Lower					
Effective stroke S mm	110	189	135	36	36

**R4T Series (TKC, TCF, TLF, TCLF, TLF<sub>2</sub>, TNF, TLF-HS)**

Jaw (Jig) type	Screw action jaw			
Load	50N (5kgf)	250N (25kgf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-250N-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=20		H=70	
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	R-R4T-50N	R-R4T-250N	R-R4T-1KN	R-R4T-5KN
Effective stroke S mm	220	220	220	200

Jaw (Jig) type	Wedge action jaw (Sliding type)			
Load	1kN (100kgf)	5kN (500kgf)	10kN (1tf)	50kN (5tf)
① Load cell	UR-1KN-D	UR-5KN-D	UR-10KN	UR-50KN
② Load cell spacer	H=20	H=70		Unnecessary
③ Universal joint	J-UF-1KN	J-UF-5KN	J-UF-10KN	J-UF-50KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	R1-R4T-1KN	R1-R4T-5KN	R-R4T-10KN	R-R4T-50KN
Effective stroke S mm	220	220	200	220

Jaw (Jig) type	Air jaw				
Load	50N (5kgf)	500N (50kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-500N-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	H=20			H=70	
③ Universal joint	J-UF-50N	J-UF-500N	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RA-R4T-50N	RA-R4T-500N	RA-R4T-1KN	RA-R4T-5KN	RA-R4T-10KN
Effective stroke S mm	200	200	200	120	90

Jaw (Jig) type	Compression cage				Bending cage	
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	50kN (5tf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-1KN-D	UR-5KN-D	UR-50KN-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=20		H=70	Unnecessary	H=20	H=70
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-5KN	J-UF-50KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RC-R4T-50N	RC-R4T-1KN	RC-R4T-5KN	RC-R4T-50KN	RBE-R4T-1KN	RBE-R4T-5KN
Effective stroke S mm	110	189	135	130	36	36

Jaw (Jig) type	Air jaw				
Load	50N (5kgf)	500N (50kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-500N-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	H=20			H=70	
③ Universal joint	J-UF-50N	J-UF-500N	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RA-U3-50N	RA-U3-500N	RA-U3-1KN	RA-U3-5KN	RA-U3-10KN
Effective stroke S mm	200	200	200	120	90

Jaw (Jig) type	Compression cage				Bending cage	
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	50kN (5tf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-1KN-D	UR-5KN-D	UR-50KN-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=20		H=70	Unnecessary	H=20	H=70
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-5KN	J-UF-50KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RC-U3-50N	RC-U3-1KN	RC-U3-5KN	RC-U3-50KN	RBE-U3-1KN	RBE-U3-5KN
Effective stroke S mm	110	189	135	130	36	36

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

# 9 Jigs for Temperature Chamber Test

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

⑩ Detector & Calibration Device

Load cell

Extensometer

## U4 Series (TKC, TCF, TLF, TCLF, TLF<sub>2</sub>, TNF, TLF-HS)

Jaw (Jig) type	Screw action jaw			
Load	50N (5kgf)	250N (25kgf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-250N-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	Unnecessary			H=50
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	R-U4-50N	R-U4-250N	R-U4-1KN	R-U4-5KN
Effective stroke S mm	300	300	300	300

Jaw (Jig) type	Wedge action jaw (Sliding type)				
Load	1kN (100kgf)	5kN (500kgf)	10kN (1tf)	50kN (5tf)	100kN (10tf)
① Load cell	UR-1KN-D	UR-5KN-D	UR-10KN-D	UF-50KN-D	UF-100KN-D
② Load cell spacer	Unnecessary	H=50		Unnecessary	
③ Universal joint	J-UF-1KN	J-UF-5KN	J-UF-10KN	J-UF-50KN	J-UF-100KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	R1-U4-1KN	R1-U4-5KN	R-U4-10KN	R-U4-50KN	R-U4-100KN
Effective stroke S mm	300	300	280	300	290

Jaw (Jig) type	Air jaw				
Load	50N (5kgf)	500N (50kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-500N-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	Unnecessary			H=50	
③ Universal joint	J-UF-50N	J-UF-500N	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RA-U4-50N	RA-U4-500N	RA-U4-1KN	RA-U4-5KN	RA-U4-10KN
Effective stroke S mm	280	280	280	200	170

Jaw (Jig) type	Compression cage				
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	50kN (5tf)	100kN (10tf)
① Load cell	UR-50N-D	UR-1KN-D	UR-5KN-D	UR-5-A	UF-10-A
② Load cell spacer	Unnecessary		H=50	Unnecessary	
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-5KN	J-UF-50KN	J-UF-100KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RC-U4-50N	RC-U4-1KN	RC-U4-5KN	RC-U4-50KN	RC-U4-100KN
Effective stroke S mm	110	189	135	130	70

Jaw (Jig) type	Bending cage	
Load	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-1KN-D	UR-5KN-D
② Load cell spacer	Unnecessary	H=50
③ Universal joint	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor, Upper/Lower	RBE-U4-1KN	RBE-U4-5KN
Effective stroke S mm	36	36

**U5 Series (TKC, TCF, TLF, TCLF, TLF<sub>2</sub>, TNF, TLF-HS)**

Jaw (Jig) type	Screw action jaw			
Load	50N (5kgf)	250N (25kgf)	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-50N-D	UR-250N-D	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=15			
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor. Upper/Lower	R-U5-50N	R-U5-250N	R-U5-1KN	R-U5-5KN
Effective stroke S mm	360	360	360	360

Jaw (Jig) type	Wedge action jaw (Sliding type)				
Load	1kN (100kgf)	5kN (500kgf)	10kN (1tf)	50kN (5tf)	100kN (10tf)
① Load cell	UR-1KN-D	UR-5KN-D	UR-10KN-D	UF-50KN-A	UF-100KN-A
② Load cell spacer	H=15			Unnecessary	
③ Universal joint	J-UF-1KN	J-UF-5KN	J-UF-10KN	J-UF-50KN	J-UF-100KN
④ Furnace jaw (jig) ⑤ Furnace arbor. Upper/Lower	R1-U5-1KN	R1-U5-5KN	R-U5-10KN	R-U5-50KN	R-U5-100KN
Effective stroke S mm	360	350	335	360	340

Jaw (Jig) type	Air jaw				
Load	50N (5kgf)	500N (50kgf)	1kN (100kgf)	5kN (500kgf)	10kN (1tf)
① Load cell	UR-50N-D	UR-500N-D	UR-1KN-D	UR-5KN-D	UR-10KN-D
② Load cell spacer	H=15				
③ Universal joint	J-UF-50N	J-UF-500N	J-UF-1KN	J-UF-5KN	J-UF-10KN
④ Furnace jaw (jig) ⑤ Furnace arbor. Upper/Lower	RA-U5-50N	RA-U5-500N	RA-U5-1KN	RA-U5-5KN	RA-U5-10KN
Effective stroke S mm	340	340	330	250	220

Jaw (Jig) type	Compression cage				
Load	50N (5kgf)	1kN (100kgf)	5kN (500kgf)	50kN (5tf)	100kN (10tf)
① Load cell	UR-50N-D	UR-1KN-D	UR-5KN-D	UF-5-A	UF-10-A
② Load cell spacer	H=15			Unnecessary	
③ Universal joint	J-UF-50N	J-UF-1KN	J-UF-5KN	J-UF-50KN	J-UF-100KN
④ Furnace jaw (jig) ⑤ Furnace arbor. Upper/Lower	RC-U5-50N	RC-U5-1KN	RC-U5-5KN	RC-U5-50KN	RC-U5-100KN
Effective stroke S mm	110	189	135	130	70

Jaw (Jig) type	Bending cage	
Load	1kN (100kgf)	5kN (500kgf)
① Load cell	UR-1KN-D	UR-5KN-D
② Load cell spacer	H=15	
③ Universal joint	J-UF-1KN	J-UF-5KN
④ Furnace jaw (jig) ⑤ Furnace arbor. Upper/Lower	RBE-U5-1KN	RBE-U5-5KN
Effective stroke S mm	36	36

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
- Wedge action jaws
- Air jaws
- Jaws for tire cord
- Oil jaws
- Jaws for rubber
- Reel jaws
- Other special jaws
- ② Compression, Bending Test
- ③ High Polymers Test
- ④ Textile Material
- ⑤ Paper & Pulp Test
- ⑥ Wood Material
- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

## Detectors and calibration devices

### Load cell

The load cell used for TENSILON is a high-performance strain gauge type load cell that was specially developed for TENSILON. Strain gauge type load cells have advanced features such as high-speed response and high resolution. Those with less zero-drift are selected for TENSILON.

We can offer a wide variety of load cells with capacities ranging from heavy loads to minute loads.



A



B



C

#### Load cell for RTF and RTG (for both tensile and compression)

Max load	Type	Product code	Figure
300kN	UF-30-A	UF-30-A	A
250kN	UF-25-A	UF-25-A	A
100kN	UF-10-A	UF-100-A	A
50kN	UF-5-A	UF-5-A	A
25kN	UF-2.5-A	UF-2.5-A	A
10kN	UR-10KN-D	UR-10KN-D	B
5kN	UR-5KN-D	UR-5KN-D	B
2.5kN	UR-2.5KN-D	UR-2.5KN-D	B
1kN	UR-1KN-D	UR-1KN-D	B
500N	UR-500N-D	UR-500N-D	B
250N	UR-250N-D	UR-250N-D	B
100N	UR-100N-D	UR-100N-D	B
50N	UR-50N-D	UR-50N-D	B
25N	UR-25N-D	UR-25N-D	B
10N	UR-10N-D	UR-10N-D	B

#### Load cell with smaller capacity

Max load	Type	Product code	Figure
500gf	TLU-0.5L-FII	TLU-0.5L-F2	C
200gf	TLU-0.2L-FII	TLU-0.2L-F2	C

Note: When using a load cell with smaller capacity, the mounting jig (product code: RTC-16) and the matching box (product code: RTC-14) are necessary.

g

① Tensile Test

Configurations

Universal joints

Jaws

Screw action jaws

Wedge action jaws

Air jaws

Jaws for tire cord

Oil jaws

Jaws for rubber

Reel jaws

Other special jaws

② Compression, Bending Test

③ High Polymers Test

④ Textile Material

⑤ Paper & Pulp Test

⑥ Wood Material

⑦ Peeling & Debonding

⑧ Other Special Test

⑨ Temperature Chamber

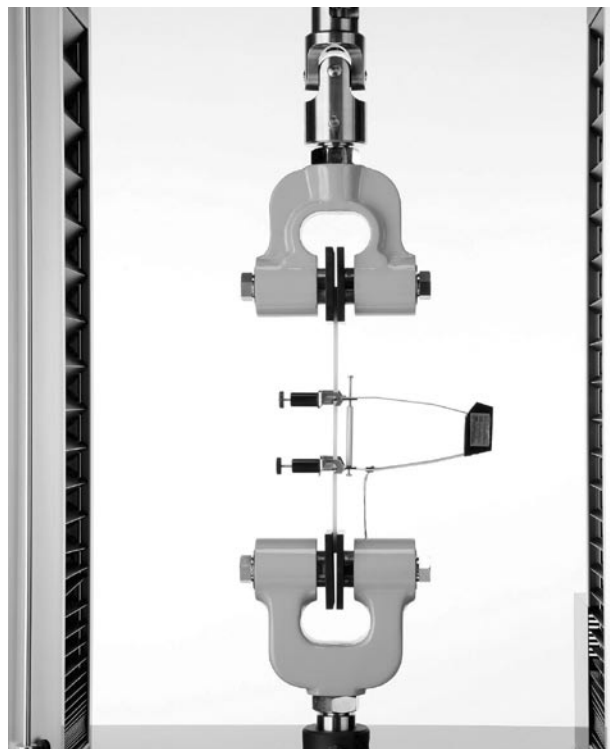
⑩ Detector & Calibration Device

Load cell

Extensometer

## Strain gauge type extensometer between gauge marks

This testpiece-mounted type extensometer provides highly accurate measurements of the elongation between gauge marks. In order to provide excellent resolution, the same strain gauge as load cell is used to detect elongation. This extensometer has an insignificant effect on the testpiece because it is extremely lightweight. You can select an appropriate extensometer according to necessary elongation range.



Type	Product code	Distance between gauge marks (mm)	Max elongation (mm)	Operating temperature range	Applicable testpiece (mm)			
					Flat plate	Round bar		
SG50-5A	U-SG50-5A	50	5	-10~+70°C	W25.4(Max) ×T0.5~8	φ3~φ10		
SG50-20A	U-SG50-20A	50	20					
SG50-50A	U-SG50-50A	50	50					
SG25-5A	U-SG25-5A	25	5					
SG25-10A	U-SG25-10A	25	10					
SG25-25A	U-SG25-25A	25	25					
SG50-5AH	U-SG50-5AH	50	5	-10~+150°C				
SG50-20AH	U-SG50-20AH	50	20					
SG50-50AH	U-SG50-50AH	50	50					
SG25-5AH	U-SG25-5AH	25	5					
SG25-10AH	U-SG25-10AH	25	10					
SG25-25AH	U-SG25-25AH	25	25					
SG25-5R (For rank ford)	U-SG25-5R	21	-5	-10~+70°C	W25×T2~6	—————		
SG20-1	U-SG20-1	20	1		W10×T2~6	—————		

Note: When used with RTF or RTG, a separate SG extensometer amplifier (RTF-04) is required.

- ① Tensile Test
- Configurations
- Universal joints
- Jaws
- Screw action jaws
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- Reel jaws
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- ② Compression, Bending Test
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- ④ Textile Material
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①  
Tensile  
Test

Configurations

Universal  
joints

Jaws

Screw  
action  
jaws

Wedge  
action  
jaws

Air jaws

Jaws  
for  
tire cord

Oil jaws

Jaws  
for  
rubber

Reel jaws

Other  
special  
jaws

②  
Compression,  
Bending Test

③  
High Polymers  
Test

④  
Textile  
Material

⑤  
Paper &  
Pulp Test

⑥  
Wood  
Material

⑦  
Peeling &  
Debonding

⑧  
Other Special  
Test

⑨  
Temperature  
Chamber

⑩  
Detector &  
Calibration  
Device

Load cell

Extensometer

## Calibration device for extensometers

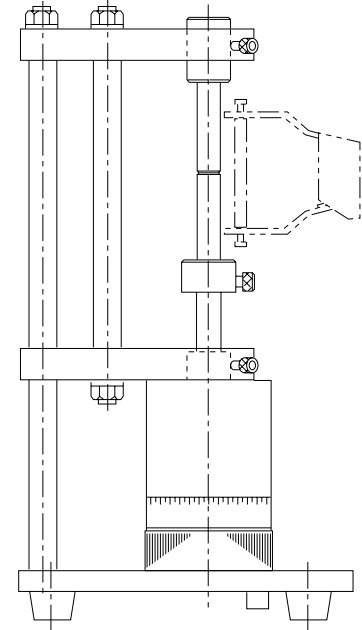
This calibration device for the correction of displacement of the SG extensometer is composed of a highly accurate digital micrometer with a non-rotating spindle.

### ● Standard configuration

Main body of calibration device for extensometer (1 set)

Shaft for setting extensometer (1 set each)

Type	DC-50D
Product code	C-DC-50D
Displacement stroke (mm)	50
Displacement measuring method	Micrometer
Minimum resolution	1 $\mu$ m
Reading method	Digital counter
Applicable extensometer	Extensometer with 50mm or smaller measurement range
Other functions	Zero set, Direction switch, Preset, BCD output





## U-4310 series contact extensometer between gauge marks

This is a device that enables highly accurate measurements of the elongation between gauge marks by directly attaching 2 sensors to upper/lower gauge marks made of plastics (ISO modulus measurements), highly-extensile rubber, soft plastics or other materials.

The U-4310D and U-4310DJ series have a special automatic clamp function for the easy attachment of the testpiece. The test material clamp edge can be changed depending on the testpiece such as ropes, rubbers and plastics.

By using the MSAT series data processing device, elongation signals can be displayed, analyzed and recorded as stress-strain curves.

Type	U-4310D	U-4310DJ
Measurement range of elongation	0~500mm	
Resolution	25 μm	
Resolution of minimum elongation	0~1 mm	0.2 μm
Minimum distance between gauge marks	20mm	50mm
Sliding friction	Approx. 100g	Approx. 100g
Applicable testpiece size	Width: 5 mm~10 mm	
	Thickness: 2 mm~4 mm	
Operating temperature range	20±10°C	
Test material clamp method	Automatic	
Overall size	120 (w) × 250 (D) × 1285 (H) mm	
Weight	7kg	20kg

Note: An appropriate fixed jig for the testing machine in use is needed separately



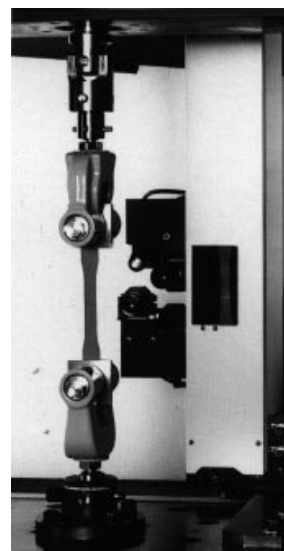
Extensometer

## U-4410 series non-contact type extensometer between gauge marks

This electronic optical system extensometer makes possible highly precise measurements of the elongation of rubber, plastics and sheets, etc., between the gauge marks without contact with the testpiece. Its highly sensitive system (high/low temperature chambers) also makes it possible to measure the elongation between the gauge marks from outside the chamber.

Testpiece	Rubber, plastics, film, sheet
Detection system	Electronic optical system
Minimum distance between gauge marks	20mm
Maximum elongation	800mm
Following speed	Approx. 1000mm / min at maximum
Elongation measurement range	50、100、200、400、800mm
Resolution	0.025% of each full scale range
Accuracy	±(0.05mm + 0.5% FS) with accuracy of each upper and lower detection head
Analog output	5V DC / full scale range
Power supply	100V 50/60Hz 200VA
Operating temperature range	20°C~±10°C
Overall size:	Main body Approx. 225(W)x1400(H)x150(D)mm: Approx. 20kg
Weight	Controller Approx. 400(W)x130(H)x300(D)mm: Approx. 150kg

Note 1: An appropriate fixed jig for the testing machine in use is needed separately  
 Note 2: For measurement of the elongation inside the chamber, a constant temperature chamber appropriate to the extensometer is needed.



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- ⑦ Peeling & Debonding
- ⑧ Other Special Test
- ⑨ Temperature Chamber
- ⑩ Detector & Calibration Device
- Load cell
- Extensometer

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**Attention to  
Safety!**

● For proper use, read the instruction  
manuals carefully before use.

● Appearance and/or specifications subject to change for improvement without notice.  
● Contents of this catalog last updated March 2008.