



Anchor Tensile Testing Machine

TECHNO TESTER



SANKO TECHNO

Anchor Tensile Testing Machine

TECHNO TESTER

AT seriesAnchor Tensile Testing Machine

To easily verify the strength of post-installed anchor bolts on site, we have designed and developed the AT Series of non-destruction testing machines, which can fit various tests required for installing equipment, earthquake resistance, civil engineering work or other applications.



AT-10DII
Maximum Load 100kN



AT-200
Maximum Load 200kN



AT-30DII
Maximum Load 300kN

KT seriesHandy Tensile Testing Machine

Easy maneuverability and simple functionality.
Optimum choice for managing on-site building equipment.



KT-6
Maximum Load 6kN



KT-20
Maximum Load 20kN

RT seriesAdhesion Strength Testing Machine

Certified by the Japan Society For Finishing Technology, RT Series can be applied not only to the R&D of exterior material works but also to general on-site construction control and verification.



RT-1000LDII
Maximum Load 10kN



RT-2000LDII
Maximum Load 20kN



RT-3000LDII
Maximum Load 30kN

Nondestructive Testing

An examination to verify the tensile load within a range not exceeding the failure load of anchors and substrates. Nondestructive testing is performed based on the premise that the tensile load applied must be less than the failure load of concrete and anchors.

Adhesion Strength Testing

A test to calculate the adhesion strength of the bonding surface by applying load which cause the failure or detachment of the bonding surface.

Model Number	AT-10DII	AT-200	AT-30DII
Maximum Load	100kN	200kN	300kN
Maximum Displacement	15mm		
Target Anchor Bolts	M6~M24, W1/4~W1 Projection length of bolt: equal or greater than bolt diameter and less than 120mm Deformed Bar D10-D16 (Dedicated chuck sold separately)	M16~M24, W5/8~W1 Deformed Bar D16-D25 (Dedicated chuck sold separately)	M16~M24, W5/8~W1 Deformed Bar D16-D32 (Dedicated chuck sold separately)
Slope Correction Range	±5°		
Load・Displacement Accuracy	Non-Linearity: ±2%F.S. ±1 digit		Non-Linearity: ±1.5%F.S. ±1 digit
Mass	Main Unit	6.1kg	11.0kg
	Measuring Section	20.0kg	
	Hydraulic Pump	ca.1.0kg	
Measuring Section	Measuring Range	ca.3.9kg	
	Minimum Display Value	Load: 0~100kN Displacement: 0~15mm	Load: 0~200kN Displacement: 0~15mm
	Protective Structure	Load: 0~1kN Displacement: 0.05mm	Load: 0~300kN Displacement: 0~15mm
	Indicator	Load: 0.1kN Displacement: 0.01mm	
	Data Storage	Splash-Proof Type (Corresponding to IP54)	
	Output	Dot matrix character 128×64 dot with backlight	
	Power	Graphical data: 99 files Point data: 9,999 files (Test date, Maximum load, Maximum displacement at maximum load)	
	Continuous Duty Time	RS-232C	
	Misc.	Size AA battery x4	
	Load Method	ca. 30 hours when using alkaline battery and without using back-light function	
Mechanical Section	Load sensor	Hold maximum value, buzzer alarm, auto shutdown	
	Displacement Sensor	Hydraulic (hydraulic cylinder + manual hydraulic pump)	
	Center Shaft	Internal fastening type with linear slide mechanism	Strain gauge load cell
		Rated Value: 100kN	Rated Value: 200kN
Required Minimum Working Width		118mm	136mm
Accessories		M36×P3 (Front End: M24×P2 External Thread)	135mm
		M20 Fully Threaded Bolt	M33 Coarse Threaded Bolt (Front End: M24 Coarse Thread) overall length: 290mm
		Fastening Tools Kit Center Shaft Adjusting Nut Couplings with Dedicated Bolts (16 Sizes) : M6~M24, W1/4~W1 Storage Case: 420×255×325mm Techno Tester Report・Techno Tester Graph (CD) PC cable	
		Hydraulic Pump Hydraulic hose (3m) Connecting Hose (3m) Displacement Gauge and Dummy Plug Center shaft Adjusting nut Plate Washer Couplings (8 Sizes): M16~M24, W5/8~W1 Techno Tester Report Techno Tester Graph (CD) PC Cable Motor Wrench Hydraulic Oil (0.5L for refill)	

Model Number	KT-6	KT-20
Maximum Load	6kN	20kN
Accuracy	Non-Linearity: ±5%F.S.	
Mass of Main Unit	1.7kg	3.7kg
Measuring Section	Gauge	Bourdon-Tube-Type Pressure Gauge
	Minimum Scale Value	0.25kN
	Misc.	0.5kN
Mechanical Section	Load Method	Maximum value hold by memory pointer
	Center Shaft	Force application by tightening handle
Projection Length of Anchor Bolts	W3/8 Fully Threaded Bolt (overall length: 190mm)	M12 Fully Threaded Bolt (overall length: 195mm)
Accessories	Greater than diameter of bolts and less than 40mm	Greater than or equal to bolt diameter and less than 80mm (smaller than M16,W5/8) Greater than or equal to bolt diameter and less than 65mm (M20,W3/4)
	Coupling M10 Handy-Carrying Case Instruction Manual	

Model Number	RT-1000LDII	RT-2000LDII	RT-3000LDII
Maximum Load	10kN	20kN	30kN
Slope Correction Range	±2.5°		
Load・Displacement Accuracy	Non-Linearity: ±3%F.S. ±1 digit		
Mass of Main Unit	3.3kg	4.5kg	5.1kg
Measuring Section	Minimum Display Value	Load:0.01kN / Displacement: 0.05mm	
	Protective Structure	Splash-Proof type (Corresponding to IP54)	
	Indicator	Dot matrix character 128×64 dot with backlight	
	Data Storage	Graphical data: 99 files Point data: 9,999 files (Test date, Maximum load, Maximum displacement under maximum load)	
	Output	RS-232C	
	Power	Size AA battery x4	
	Continuous Duty Time	ca. 30 hours when using alkaline battery and without using back-light function	
	Misc.	Hold maximum value, buzzer alarm, auto shutdown	
Mechanica Section	Load Method	Hydraulic(hydraulic cylinder + manual hydraulic pump)	
	Load sensor	Semiconductor pressure sensor	
	Sensor of Displacement	Potentiometer	
	Center Shaft	W3/8 Threaded Bolt	M12 Threaded Bolt
Required Width for Setting Testing Machine	110mm	111mm	121mm
Accessories	M15 Adapter (M15×1.5) W3/8 Adapter (Only available for RT-2000LDII / 3000LDII) Center shaft Adjusting Knob Techno Tester Report (CD) PC Cable		

Measuring Section

Measuring Section with a large display improves visibility

1 Internal memory enables data storage
Data can be saved by measuring section even without connecting to PC on site

Graphic Mode:
99 data
(F01-F99)

Load-Displacement / Load Testing Mode:
9,999 data
(P001-P9999)

2 Versatile display modes
① Graphic Testing Mode / Allows observer to confirm simplified load-displacement curve at testing site (see right picture)
② Load-Displacement Testing Mode
③ Load Testing Mode
④ Current time display

Backlighting
Using the backlight, data can clearly be seen by the eye or recorded by a digital camera in tunnels or other dark construction sites

Maximum value hold by memory pointer

KT



Features

- Light-weight, compact design applicable to various on-site tests
- Easy operation enables tensile testing up to 100kN
- Measure and save tension and displacement value digitally
- Improve work efficiency significantly
- Power cord free

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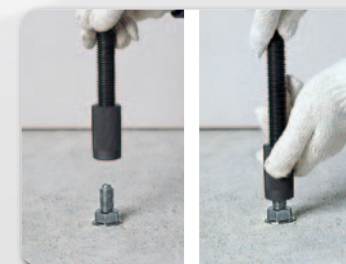
AT-10DII

Maximum Load
100kN

Testing Procedure (Example)



① Set the expected value.



② Mount the coupling that suits the diameter of the anchor onto the center shaft, and screw it into the anchor.



③ Adjust the supporting legs to stabilize the tester.



④ Conduct testing by using a box-end wrench to tighten the nut.



⑤ Print out the measuring results.



Also applicable to internally threaded anchors

Set the bolt applicable to the internally threaded anchor into the coupling.

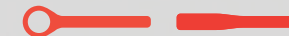
The maximum measurable range can reach 100kN (10.2tf) by using the accessory tools



Box-end Wrench Measurable range up to ca. 20kN (ca.2tf)



Box-end Wrench + One Extension Pipe Measurable range up to ca. 60kN (ca.6tf)



Box-end Wrench + Two Extension Pipes Measurable range up to ca. 100kN



AT

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AT-30DII

Maximum Load
300kN

AT

Features

- Center hole with large caliber
(AT-200: 34.5mm diameter allows deformed bar D25 to pass through)
(AT-30DII: 36.0mm diameter allows deformed bar D32 to pass through)
- Hydraulic hose (3m) with one-touch coupler helps it connect easily
- The weight of the main unit is reduced to 11kg by adopting the aluminum cylinder (AT-200)

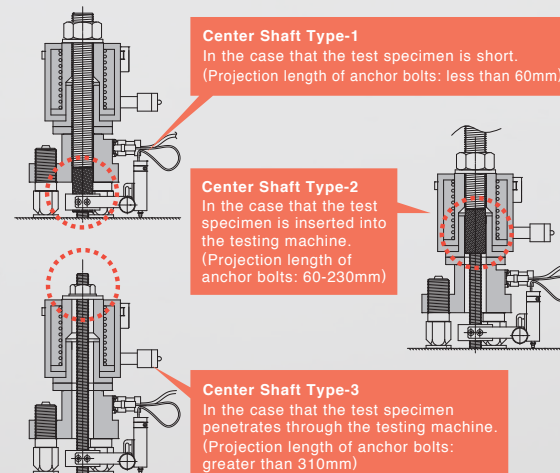
TECHNO TESTER

AT-200

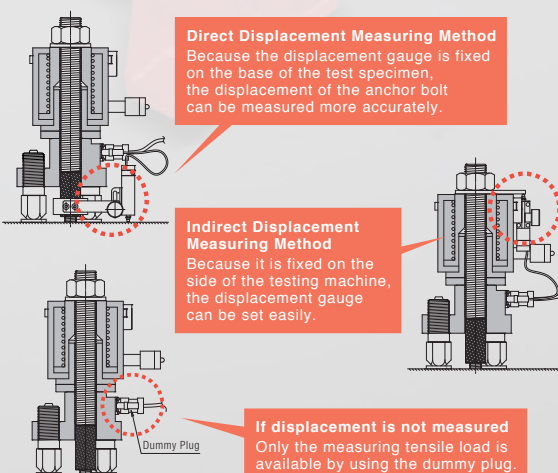
Maximum Load
200kN

Testing Methods

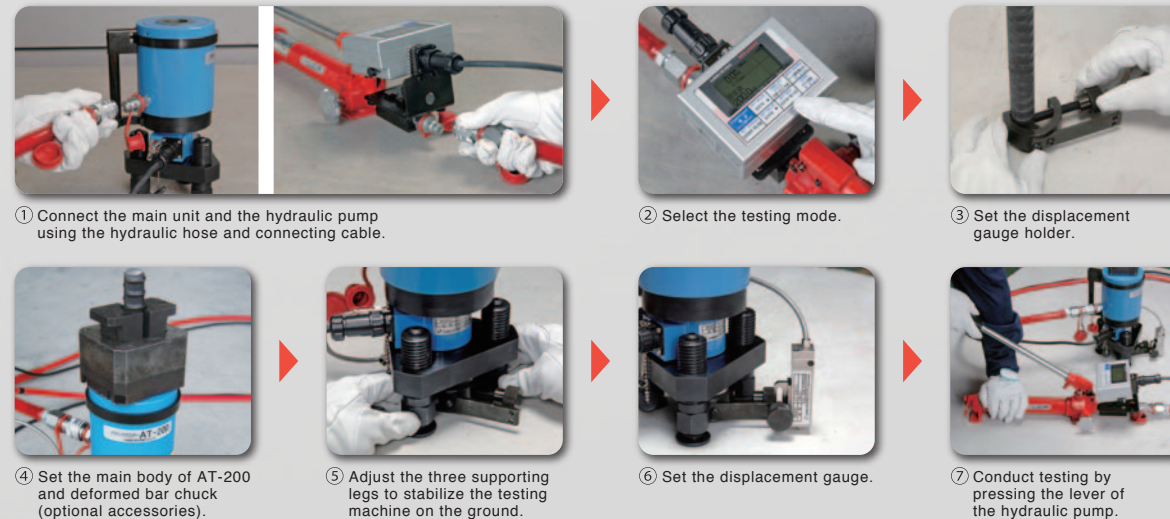
Corresponding to the length of the anchor bolt



Corresponding to the displacement measurement



Testing Procedure (Example) — In the case of measuring displacement of the deformed bar



TECHNO TESTER

KT-6 / 20

Maximum Load
6kN

Maximum Load
20kN

Features

- Suitable for on-site construction control
- Easy operation
- Can be applied in narrow places
- Light weight by adopting an analog-type measuring section (KT-6/1.7kg, KT-20/3.7kg)

TECHNO TESTER

RT-1000LDII

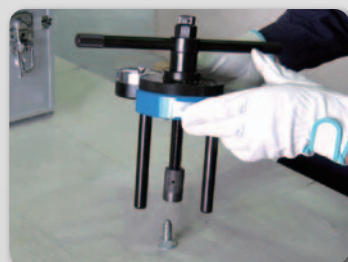
Maximum Load
10kN

2000LDII ^{Maximum Load 20kN} / 3000LDII ^{Maximum Load 30kN}

Features

- Compact and light-weight design allows testing in narrow or unsteady places
- Can measure tensile load and displacement simultaneously
- Convenient functions include buzzer reminder for testing completion, maximum value holder, etc.
- Dry battery-driven main unit without AC power
- The measuring results can be printed out on site using the dedicated printer (optional accessory)

Testing Procedure (Example) — In the case of measuring displacement of the deformed bar



① Screw the coupling into the center shaft.

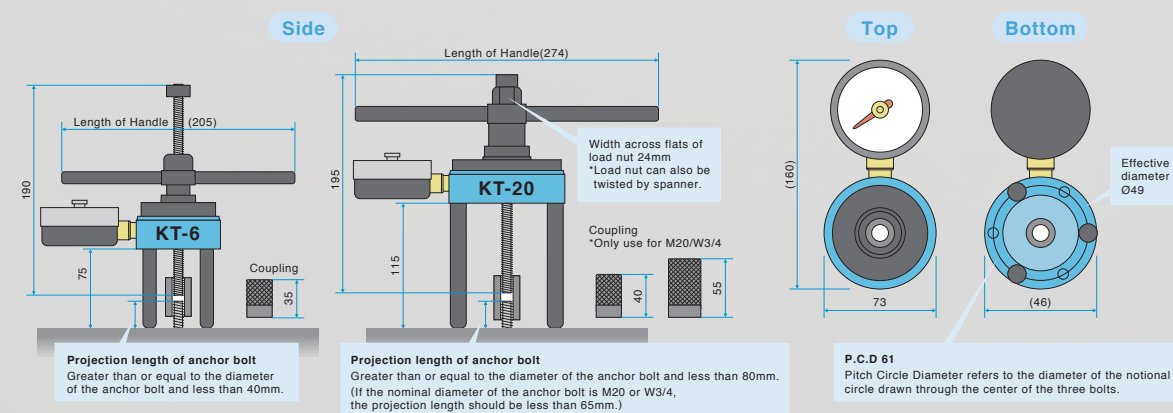


② Screw the coupling into the anchor.

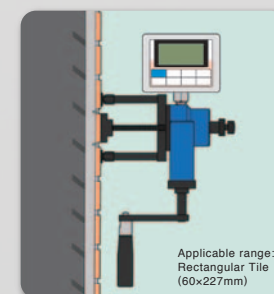


③ Conduct testing.

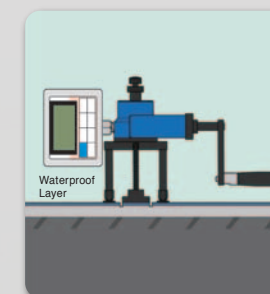
Dimensional drawing



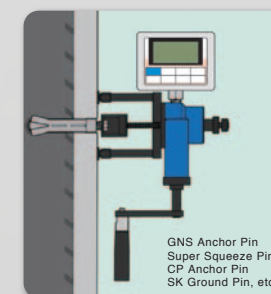
Application



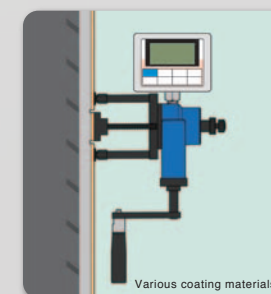
Tensile load verification of external tiles.



Tensile load verification of waterproof layer foundation.



Tensile load verification of anchor pin used for external wall repairs.



Tensile load verification of various external wall repairing materials.

DEFORMED BAR CHUCK - DCH

Features

- Easily set and no need to cut the thread of the deformed bar
- Easy-to-detach shape saves time and improves work efficiency
- Compact, light-weight and easy to carry (A compact storage box is included.)

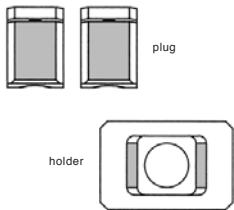
Application: for testing deformed bars

Setup Method

Clean up any dust or dirt by wiping with a cloth.

Be aware that dust and dirt may damage the deformed bar chuck, which may be difficult to detach. Therefore, remove the dirt completely.

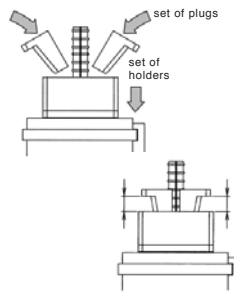
After cleaning, greasing the part will help detach the deformed bar chuck easily while the load is released.



① Preparation

When setting the plugs into the holder, make an equal gap between the two sides.

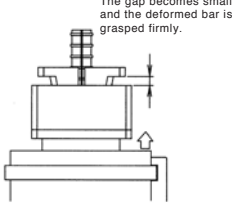
In this case, you need not drive in the deformed bar chuck. Don't drive in.



② Setup of deformed bar chuck

Apply the tensile load to conduct testing.

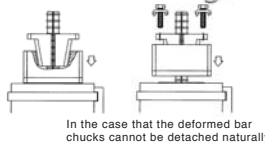
When the gap between the plugs and the holder reaches 1mm and the load cannot be increased, check the size of the deformed bar chuck.



③ Applying of tensile load

Release the tensile load to detach the deformed bar chucks.

Even if the tensile load has been released, the deformed bar still cannot be detached. Drive in the accompanying bolt (M8×30 rounded end) and detach the deformed bar chuck. In this case, apply equal torque to the bolts between the two sides. Use an open-end wrench or ratchet with a 13mm width across flats.



④ Detaching of deformed bar chucks

Specifications



DCH-SET-A



DCH-SET-B



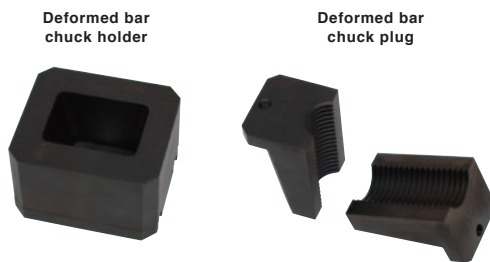
DCH-SET-C

Item	Item Code	Details	Compatible with	Projection Length of Deformed Bar	Weight
Deformed Bar Chuck Kit A [Corresponding to D10~D16]	DCH-SET-A	A type holder 1 pc. Plug for D10/D13/D16 1 pc. each	AT-10 AT-10DII	From the upper surface of tester +85mm	1.6kg
Deformed Bar Chuck Kit B [Corresponding to D16~D22]	DCH-SET-B	B type holder 1 pc. Plug for D16/D19/D22 1 pc. each	AT-200	From the upper surface of tester +110mm	3.5kg
Deformed Bar Chuck Kit C [Corresponding to D25~D32]	DCH-SET-C	C type holder 1 pc. Plug for D25/D29/D32 1 pc. each	Max.D25	From the upper surface of tester +150mm	8.9kg

*Note that different type of holders and plugs should not be mixed. Please use the same type of holders and plugs.
*The compatible specification of deformed bar is permitted up to SD345.

Optional Accessories

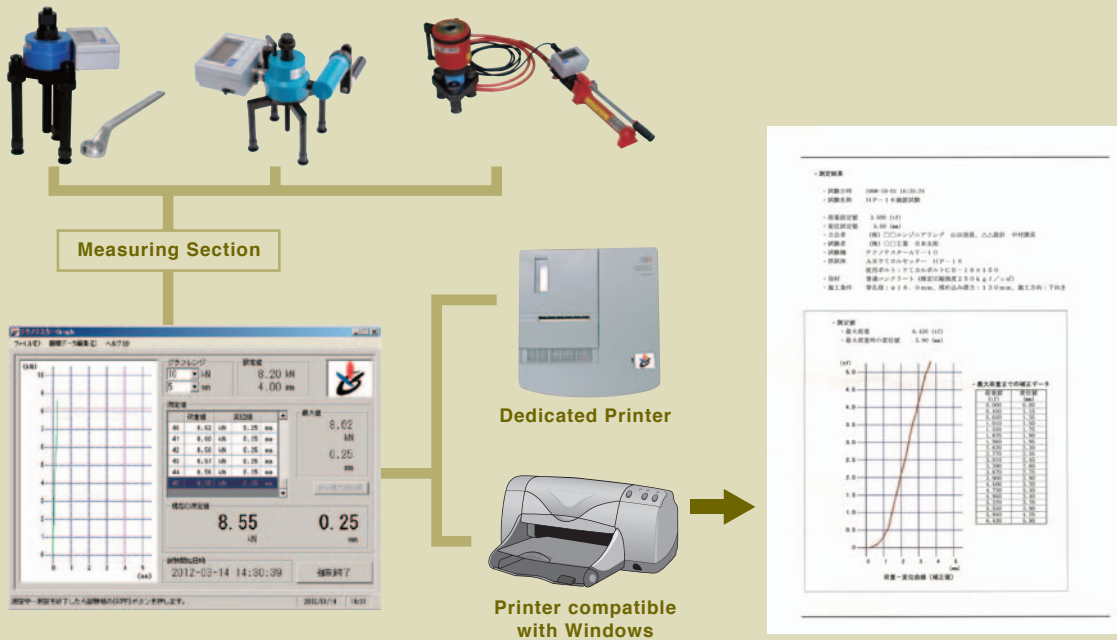
Item	Item Code	Details
Deformed Bar Chuck Holder	DCHHP-A	A type holder
	DCHHP-B	B type holder
	DCHHP-C	C type holder
Deformed Bar Chuck Plug	DCH10A-CP	A type holder
	DCH13A-CP	B type holder
	DCH16A-CP	C type holder
	DCH16B-CP	A type holder
	DCH19B-CP	B type holder
	DCH22B-CP	C type holder
Deformed Bar Chuck Bolt	DCH25C-CP	C type holder
	M8R×30	



TECHNO TESTER GRAPH

Features

- The tensile load-displacement graph can be displayed in real time
- Reports with graphs can be created easily
- The maximum value and simplified graph can be printed out on site as usual by using the dedicated printer M255A
- The testing data can be stored collectively on a CD-ROM
- The testing data can be read using spreadsheet software (e.g. MS-Excel)



Measuring Section

Dedicated Printer

Printer compatible with Windows

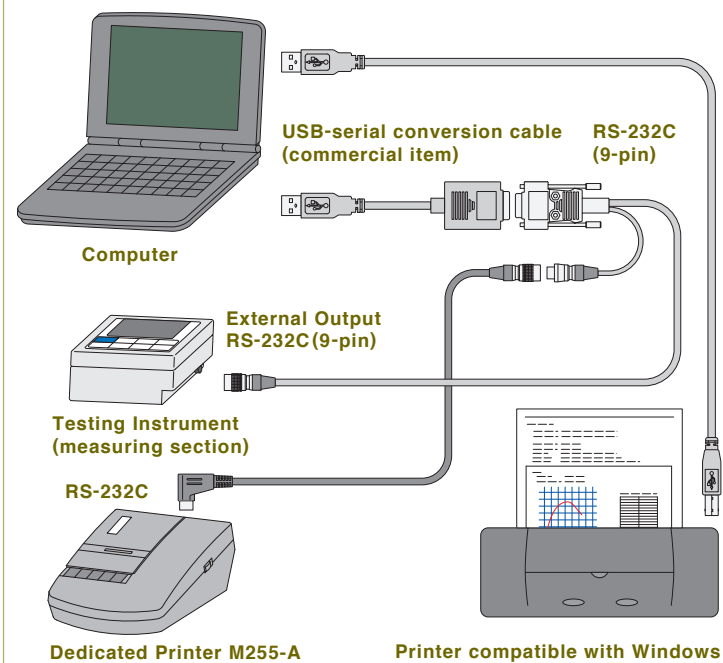
Kit Contents

- Dedicated cable
- Installation CD-ROM
- Warranty
- Registration Card

*Note: Approximately 11MB of available hard-disk space is required to install the software.



Connection Method



Optional Accessories

AT-10DII

AT

Item	Item Code	Specification	Item	Item Code	Specification
Coupling Kit (mm)	JM20-MSET	Coupling M16-M24 Threaded bolt M16-M24 1 piece of each size	Adjusting Nut	AT-10SN	Applicable to both AT-10DII and AT-10
Coupling Kit (inch)	JM20-WSET	Coupling W5/8-W1 Threaded bolt W5/8-W1 1 piece of each size	Open-end Wrench	SS0036	Used with deformed bar chuck A Type
Center Shaft	AT-10CS	Applicable to AT-10DII / AT-10 M20 coarse thread bolt (overall length 260mm)	AT-10 Height Adjustable Leg	AT1010HL-LEG	Applicable to both AT-10DII and AT-10 Set of short legs 3 pieces (including leg pad and locknut) Long-leg adapter 3 pieces Hex wrench 1 piece

AT-10 Height Adjustable Leg

(AT10HL-LEG)

Testing can be conducted for more types of anchor bolts using a height adjustable legs.

Height from the undersurface of the reaction plate to the concrete surface on which the test machine is set:

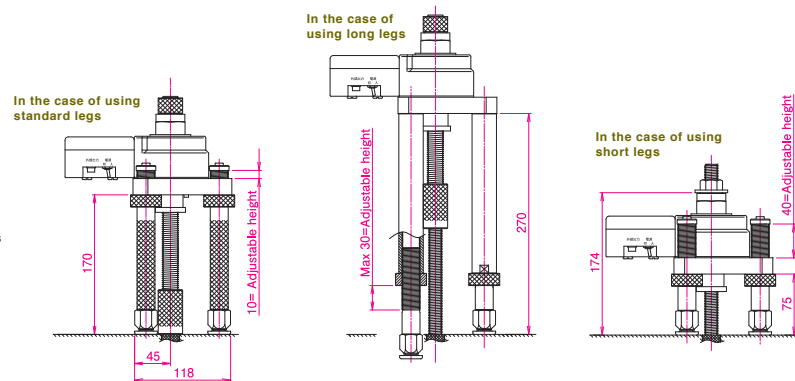
In the case of using standard legs 170mm
In the case of using long legs 270mm
In the case of using short legs 75mm

1. Setting of long legs

Using coupling, the testing can be applied to externally threaded bolts whose length is less than 200mm from the concrete surface.

2. Setting of short legs

If the externally threaded anchor bolt is too long, testing can be conducted by penetrating the anchor bolt through the $\phi 20$ mm center hole of the testing machine.
(If the tensile load cannot be applied using a standard box-end wrench, please use a 36mm open-end wrench.)



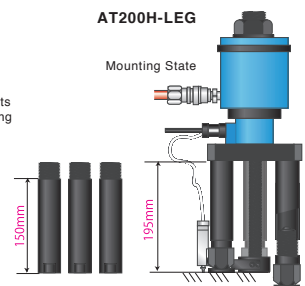
AT-200,AT-30DII

AT

Item	Item Code	Specification	AT-200	AT-30DII
Coupling Kit (mm)	JM24-MSET	Coupling M16-M24 Threaded bolt M16-M24 1 piece of each size	●	●
Coupling Kit (inch)	JM24-WSET	Coupling W5/8-W1 Threaded bolt W5/8-W1 1 piece of each size	●	●
Center Shaft	AT-200CS	M33 (overall length 290mm)	●	
Center Shaft (Short)	AT-200CS150	M33 (overall length 150mm)	●	
Center Shaft (Long)	AT-200CS450	M33 (overall length 450mm)	●	
Center Shaft	AT30-CS	Applicable to both AT-30DII and AT-30 M36×P3 fine pitch threaded rod (front end M24×P2 fine-pitch-external-thread rod) overall length 290mm		●
Center Shaft	AT30-CS465	Applicable to both AT-30DII and AT-30 M36×P3 fine pitch threaded rod (front end M36×P3 fine-pitch-external-thread rod) overall length 465mm		●
Adjusting Nut	AT30-SN	Applicable to both AT-30DII and AT-30		●
Washer Plate	AT30-TP	Applicable to both AT-30DII and AT-30 corresponding to center shaft (M36)		●
Washer Plate	AT30-TPL	Applicable to both AT-30DII and AT-30 Penetrate through center hole Corresponding to M20-M27/W3/4-W1		●
AT-200 Long Leg	AT200H-LEG	Long leg adapter	●	
AT-30 Long Leg	AT30H-LEG	Long leg adapter Applicable to both AT-30DII and AT-30		●
Interconnect Cable	CABLE-AT	Applicable to both AT-30DII and AT-30 length 3m		●
Coupling	JM24-M○○ JM24-W○○	JM24-M16/JM24-M20/ JM24-M22/JM24-M24/ JM24-W50/JM24-W60/JM24-W70/JM24-W80/	●	●

AT-200 Long Leg
(Long Leg Adapter)

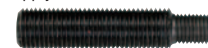
Adapter that improves on-site applicability
The type of testing anchor bolts can be broadened by combining with the long center shaft.



Center shaft

AT200-CS150 (Short)

Apply to the anchor bolts that fit inside the center hole



*As shown in Center Shaft Type-2 above, setting AT200-CS 150 (Short) is more convenient than setting standard legs.

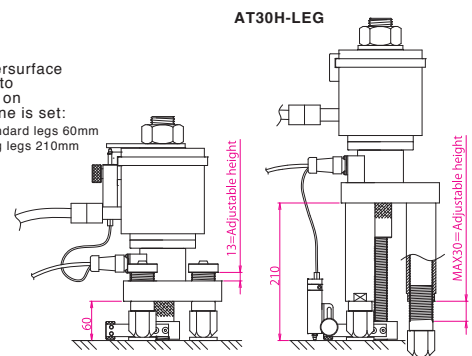
AT200-CS450 (Long)

For use by combining with AT-200 long legs



AT-30 Long Leg
(Long Leg Adapter)

Height from the undersurface of the reaction plate to the concrete surface on which the test machine is set:
In the case of using standard legs 60mm
In the case of using long legs 210mm

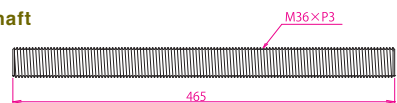


Made to order coupling

Long-type Center Shaft

AT30-CS465

Please use with made-to-order coupling



KT-6,KT-20

KT

Couplings for KT-6

Item Code	Nominal Diameter of Anchor Bolt
JW30-M6	M6
JW30-M8	M8
JW30-M10	M10
JW30-M12	M12
JW30-W20	W1/4
JW30-W25	W5/16
JW30-W30	W3/8
JW30-W40	W1/2



Coupling for KT-20
Nominal Diameter of center shaft: M12

Item Code	Nominal Diameter of Anchor Bolt
JM12-M6	M6
JM12-M8	M8
JM12-M10	M10
JM12-M12	M12
JM12-M16	M16
JM12-M20	M20
JM12-W20	W1/4
JM12-W25	W5/16
JM12-W30	W3/8
JM12-W40	W1/2
JM12-W50	W5/8
JM12-W60	W3/4



Tester Bolt for both KT-6 and KT-20
For use when connecting the coupling with internally threaded anchors

Item Code	Nominal Diameter of Anchor Bolt
JM6 × 50	M6
JM8 × 50	M8
JM10 × 50	M10
JM12 × 55	M12
JM16 × 60	M16
JM20 × 60	M20
JW20 × 50	W1/4
JW25 × 50	W5/16
JW30 × 50	W3/8
JW40 × 55	W1/2
JW50 × 60	W5/8
JW60 × 60	W3/4



TY Couplings for KT-6

Item Code	Width
JW30-T04KT	4.5
JW30-T05KT	5.5
JW30-T06KT	6.5

RT Series

RT

Jig for Adhesion/Cohesion Tensile Testing
Filler Attachment



Jig for Tensile Testing
For RT Series TY Coupling



Jig for Tensile Testing of Anchor Pin
Anchor Attachment



Attachment

Item	Item Code	Dimension(mm)		Area (mm²)	Specification	
		A	B			
Filler Attachment	FA-4040	40	40	1,600	For Materials Testing (in accordance with JIS)	Center Shaft Side W3/8
	FA-4545	45	45	2,025	For Tiles Testing	
	FA-4595	45	95	4,275		
	FA-6108	60	108	6,480		Center Shaft Side M12
	FA-6227	60	227	13,620		

Item	Item Code	Specification
M15 Adapter	JW30-M15H(B)	Externally Threaded Portion M15×P1.5
	JW12-M15H(B)	Externally Threaded Portion M15×P1.5
M15 Adapter	JW12-M15H(B)	Externally Threaded Portion M15×P1.5
TY Coupling for RT Series	JW30-T04	For 4mm
	JW30-T05	For 5mm
	JW30-T06	For 6mm
	JW30-T08	For 8mm
	JM12-T04	For 4mm
	JM12-T05	For 5mm
Anchor Attachment	AA-6L	For Center Shaft W3/8
	R10CS-SET	W3/8 (overall length:190mm)
Center Shaft	R20CS-SET	M12 (overall length:195mm)
	R10S01	For Center Shaft W3/8
Adjusting Knob	R20S01	For Center Shaft M12

Dedicated Printer

AT

RT

Required testing data can be printed out on site.



Printed Items:
Maximum load value and displacement value corresponding to maximum load
Date/Time
Test Number (Automatic Counting)

CURRENT	0.04N
CURRENT	0.00mm
CURRENT	5.04N
CURRENT	0.01mm
CURRENT	10.14N
CURRENT	0.01mm
TEST NO	1
DATE	2009/07/10 10:49
MAX	15.74N
	0.01mm

Press the [PRINT] button on the printer to print out the measurement value (load and displacement).

Press the [PRINT] button on the measuring section to print out the test number, date/time, maximum load value and displacement value corresponding to the maximum load.

Item	Item Code	Specification
Dedicated Printer for Techno Tester	M255-A	Dot matrix printing Printer 1 pc.
Dedicated Battery	BPN-621	Rechargeable nickel hydride battery
Dedicated Recharger	P-7515	For recharging dedicated battery
Ink Ribbon	PR-255	Ribbon Cassette (Purple)
Roll Paper	PP-255	overall length 30m
Carrying Case	CARRY-M255	Color: black
Dedicated Cable	CBALE-M255	For connecting with measuring section of Techno Tester

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AT-70DⅡ *Made-to-Order Item

- For testing fixing strength
(applicable to various anchor bolts)
- Allowable Testing Scope: less than 700kN
- Best suited for tensile testing of
large-diameter anchor bolts

Accessories:

Hydraulic pump (with measuring section mounting stand)
Hydraulic hose (3m)
Connecting cable
Displacement gauge
Dummy plug of displacement gauge
Displacement gauge mounting stand
Techno Tester-Report/Techno Tester-Graph (CD)
PC cable



Main Unit	Maximum Load	700kN
	Maximum Displacement	15mm
	Target Anchor Bolts	Available upon consultation
	Load Accuracy	Non-Linearity: $\pm 3.0\%$ F.S. ± 1 digit
	Displacement Accuracy	Non-Linearity: $\pm 1.5\%$ F.S. ± 1 digit
Measuring Section	Measuring Range	Load: 0~700kN Displacement: 0~15mm
	Minimum Display Value	Load: 0.1kN Displacement: 0.05mm
	Protective Structure	Splash-Proof Type (Corresponding to IP54)
	Indicator	Dot matrix character 128x64 dot with backlight
	Data Storage	Graphical data: 99 files Point data: 9,999 files (Test date, Maximum load, Maximum displacement under maximum load)
	Output	RS-232C
	Power	Size AA battery x4
	Continuous Duty Time	ca. 30 hours when using alkaline battery (without using backlight)
Mechanical Section	Misc.	Maximum value hold, buzzer alarm, auto shutdown
	Load Method	Hydraulic (hydraulic cylinder + manual hydraulic pump)
	Capacity of Cylinder	700kN
	Stroke of Cylinder	20mm
	Diameter of Center Hole	62mm
	Hydraulic Oil	ISO VG32
	Load Sensor	Strain Gauge Pressure Sensor
Mechanical Section	Rated Value of Load Sensor	100MPa
	Displacement Sensor	Potentiometer
	Rated Value of Displacement Sensor	15mm

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