MODEL－2257

INSTRUCTION MANUAL

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AIKOH ENGINEERING

SAFETY INSTRUCTIONS

This page shows important instructions on the safety. Be sure to observe them.
The warning symbols and their meanings are as shown below.

	!WARNING This mark indicates an urgent situation that is likely to cause serious injury or death, should the product be used improperly.

Some of the following warning labels are stuck in the positions that require great attention on our product. The meaning of each label is as shown below.

	Beware of High Voltage Electric wires, devices, etc. are inside. Touching them by mistake may result in electric shocks or electrocution in the worst case.		Don't Get Caught Do not put your hands under the driving mechanism. Otherwise, you may have your hand be caught.
	Don't Have Finger Cut A rotary mechanism is used here. Do not put your fingers into the rotating mechanism. Otherwise, you may have your finger be cut.		Beware of Entanglement Gears are used here. Do not put cloth or any other object that are easily entangled. Do not put on gloves or long-sleeve clothes. They may be entangled.

1. GENERAL

The Model-2257 is a test stand exclusively designed for Aikoh push-pull gauges and RZseries. Especially, it is the most suitable to Aikoh RZ series.

Features

☐ The Model-2257 has multi-voltage power supply circuit, which accepts 100 VAC to 240 VAC.

☐ It may be controlled by inputting signals to the external input connector.
The following controls are available when the Model-2257 is connected with Aikoh RZ series through the optional cable RZ-OP-1 or RZ-OP-2.
The stand stops in the case of an overload.
Setting of the "digital force gage" allows stand control according to the load.

2. INSTALLATION ENVIRONMENTS

Do not install the Model-2257 in the following places.

☐ Install the Model-2257 in as flat a place as possible.
☐ A place exposed to the direct sunlight.
☐ At ambient temperature below 0℃ or over 50℃
☐ At ambient humidity below 35% or over 85%
☐ A place subject to dew condensation due to rapid temperature changes
☐ A place with corrosive or inflammable gas
☐ A place with much dust, salt, iron powder or soot
☐ A place where vibrations or impacts are applied to the stand
☐ A place subject to splash of water, oil or chemical
☐ A place with a strong magnetic or electric field

3. GENERAL SPECIFICATIONS

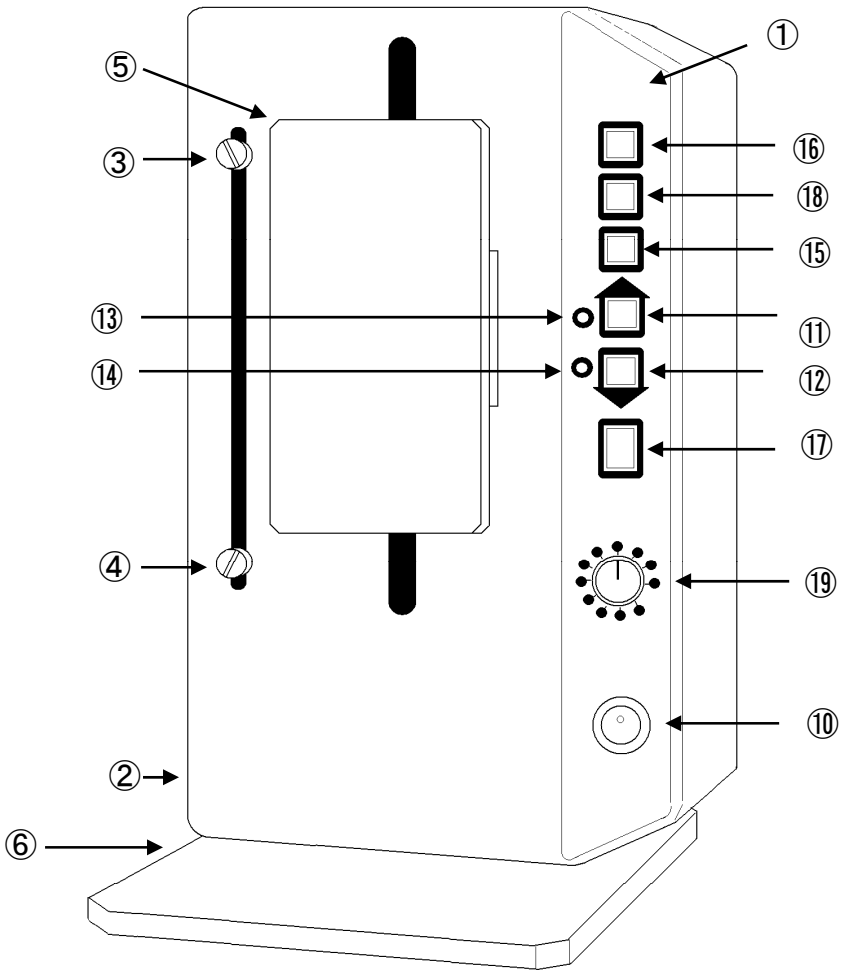
Maximum load	500 N (50 kgf)
Test speed	10 to 200 mm/min., variable
Stroke	150 mm
Input power voltage	100 to 240 VAC, multi-voltage type
Power consumption	10 VA or less
Safety device	0.5 A circuit protector
Table size	200 X 120 mm (Vertical type)
	(5-mm dia. Tapped holes for mounting jig: 4 positions)
	120 X 90 mm (Horizontal type)
	(4-mm dia. Tapped holes for mounting jig: 4 positions)
	Horizontal type plate stroke: Approx. 30 mm each vertically
Weight	Approx. 20 kg

4. ACCESSORIES

- ☐ 3-P power cable (with NEMA plug): 1
- ☐ Instruction manual of Model-2257: 1 copy
- ☐ M4 x 10 cap bolts (for digital push-pull gauge): 4
- ☐ 3-mm wrench: 1
- ☐ 4-mm wrench: 1
- ☐ 5-mm wrench: 1
- ☐ Base plate for horizontal type: 1
- ☐ L plate for horizontal type: 1
- ☐ L plate mounting knobbed screws for horizontal type: 2

5. COMPONENTS

【Body】



① Operation panel: This panel is used to carry out operations.
See the separate section.

② I/O panel: Power, etc. are input and output into/from this panel.
See the separate section.

③ Upper limit knob: The upper limit position of the driving range may be freely set with this knob.

④ Lower limit knob: The lower limit position of the driving range may be freely set with this knob. ③ and ④ are screw type knobs.
Loosen the screw, move the knob to an intended position, and tighten the screw it to fix the knob.
(The knob sinks by 1 to 1.5 mm from the position where the limit ring contacts with the head and stops then.)

⑤ Gage plate: The gage is fixed on this plate.

⑥ Sample table: A sample or jig is placed on this table to carry out a test.
This table has four tapped holes (M5) for mounting a jig.

【Operation Panel】

The descriptions below assume that the sample table is on the lower side.

⑩ POWER switch: Press this switch toward the ON direction to turn on power.
Press it toward the OFF direction to turn off power.
The stand does not work when power is turned off.

⑪ UP button: When the “MANUAL” lamp is lit, the gage plate moves up only while this button is being held.
The gage plate stops when the button is released.
Use this button to adjust the position before a test.
When the “AUTO” lamp is lit, the gage plate keeps moving up when this button is pressed.
The gage plate stops when it reaches the upper limit or the “STOP” button is pressed.

⑫ DOWN button: When the “MANUAL” lamp is lit, the gage plate moves down only while this button is being held.
The gage plate stops when the button is released.
Use this button to adjust the position before a test.
When the “AUTO” lamp is lit, the gage plate keeps moving down when this button is pressed.
The gage plate stops when it reaches the lower limit or the “STOP” button is pressed.

⑬ UP LIM lamp: When the gage plate moves up and reaches the upper limit, this lamp goes on.

⑭ DOWN LIM lamp: When the gage plate moves down and reaches the lower limit, this lamp goes on.

⑮ MANUAL button: When this button is pressed, the gage plate moves up or down only while the “UP” or “DOWN” button is being held.

⑯ RETURN button: When this button is pressed, the one-time return circuit works. As soon as the limit switch inside the stand works, the gage plate moves reversely to the previous moving direction.

* When the “RETURN” button is pressed, it has the precedence over a signal input from outside.
  Therefore, any signals input to the “STAND CONTROL” terminals are ignored.
* Deactivate the “RETURN” button to give the precedence to signals input to the “STAND CONTROL”.

⑰ STOP button: Press this button to stop operation.

⑱ AUTO button: When this button is pressed and the “UP” or “DOWN” button is pressed once, the gauge plate moves up or down.

⑲ SPEED control: This control is used to vary the up/down speed. Rotate it counterclockwise (toward the MIN position) to slow down the speed. Rotate it clockwise (toward the MAX position) to increase the speed.

Lamps

The lamps on the operation panel indicate the conditions shown below.

When turning on power

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States			On			On		

In manual operation

Upward motion: The gage plate moves up only while the UP button is being held

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States	On					On		

When operation stops at the upper limit

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States		On	Blinks			On		

Downward motion: The gage plate moves down only while the DOWN button is being held

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States				On		On		

When operation stops at the lower limit

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States			Blinks		On	On		

In automatic operation

Upward motion: The gage plate moves up only while the UP button is being held

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States	On						On	

When operation stops at the upper limit

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States		On	Blinks				On	

Downward motion: The gage plate moves down only while the DOWN button is being held

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States				On			On	

When operation stops at the lower limit

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN

States			Blinks		On		On	

In return (reciprocal) operation

Example: The gage plate moves down and stops at the upper limit

When the DOWN button is pressed once, the gage plate moves downward

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States				On			On	On

↓

When the gage plate reaches the lower limit (The indication is given instantaneously.)

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States			Blinks		On		On	On

↓

The gage plate moves up immediately after reaching the lower limit

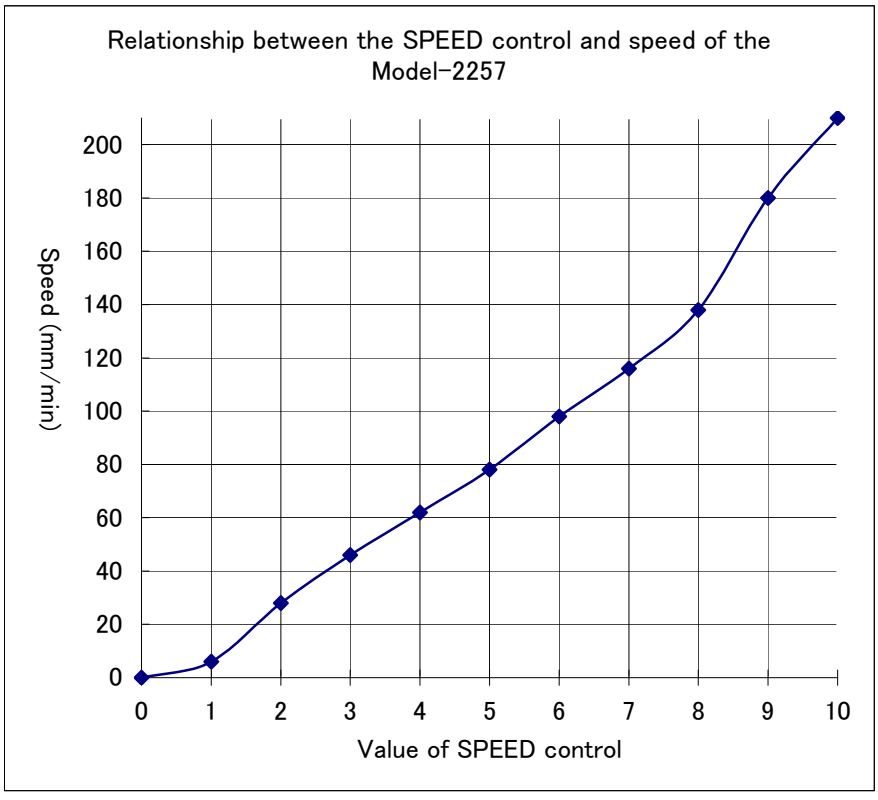
Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States	On						On	Blinks

↓

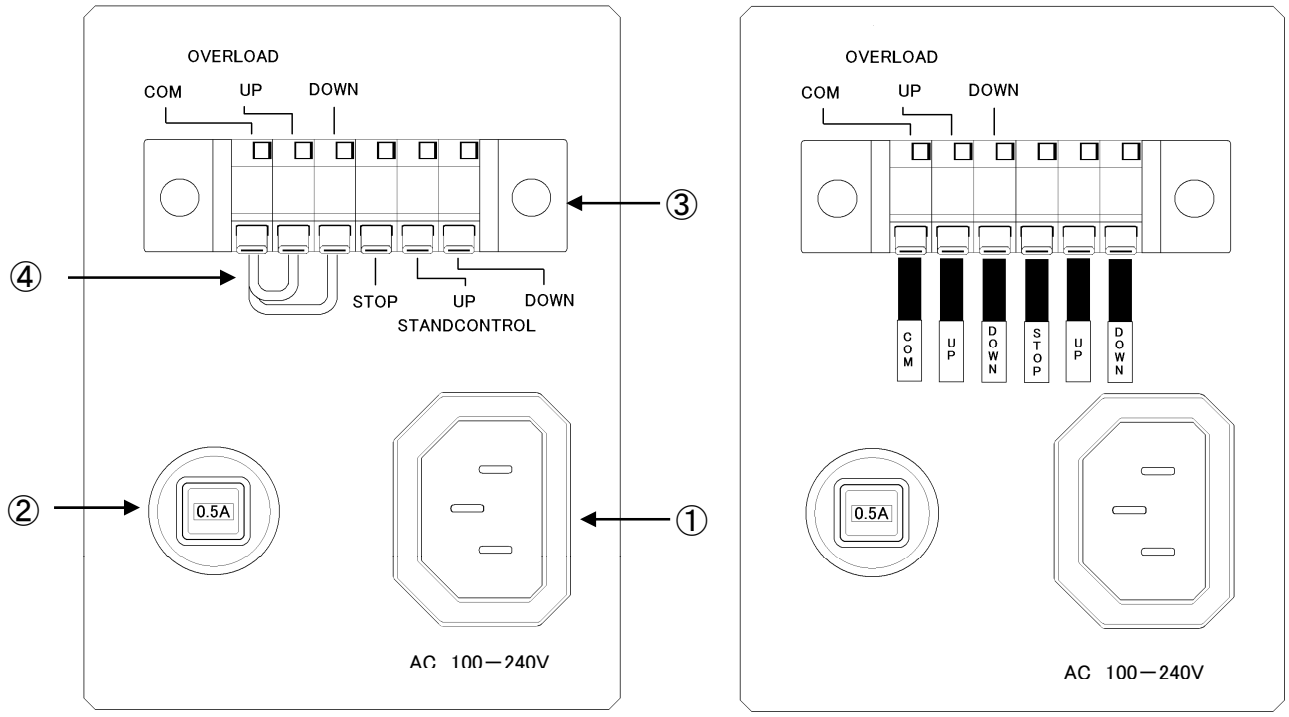
When gage plate reaches the upper limit

Lamps	UP	UP LIM	STOP	DOWN	DOWN LIM	MANUAL	AUTO	RETURN
States		On	Blinks				On	On

Relationship between the SPEED control and speed



【Sub Panel】



① Power input receptacle:

A receptacle of the AC power cable.

Plug the AC power cable fully to the end to avoid overheat or poor contact.

② Circuit protector:

This protector prevents over current.

If current over the rating flows through the stand, it cuts it out to stop supply of AC power.

③ I/O terminals:

The overload signal and external control signals are input to these terminals.

The OVERLOAD "COM", "UP" and "DOWN" terminals are short-circuited before shipment.

These terminals are as shown below from the left when you face the sub panel:

OVERLOAD	
COM	A common (ground) input terminal
UP	An upper overload input terminal
DOWN	A lower overload input terminal
STANDCONTROL	
STOP	An input terminal for stopping the stand
UP	An input terminal for moving up the stand
DOWN	An input terminal for moving down the stand

* The "OVERLOAD" and "STANDCONTROL" terminals have the same COM line in

the RZ gauge.

④ Jumper pins:

These jumper pins are connected with each other before shipment. Disconnect the jumper pins and connect the OVERLOAD lines of the optional cable to these terminals.

When the optional cable RZ-OP-1 or RZ-OP-2 of the RZ series is used

Disconnect the jumper pins from between COM-UP and COM-DOWN of the terminal block of the stand.

Terminals of the Model-2257 RZ-OP-1/RZ-OP-2

Panel display			Cable marking	
OVERLOAD			Wire color	Marking
	COM		Pink	COM
	UP		Yellow	UP
	DOWN		White	DOWN
STANDCONTROL				
	STOP		Green	STOP
	UP		Orange	UP
	DOWN		Purple	DOWN

Lead wire not shown above

External holding (Gray) --- Do not short-circuit this wire with any other wire when unused.

External resetting (Blue) --- Do not short-circuit this wire with any other wire when unused.

* Do not short-circuit the external input GND wire (brown) with any other wire when it is unused.

6. GENERAL PREPARATION

Make preparation in the procedures shown below.

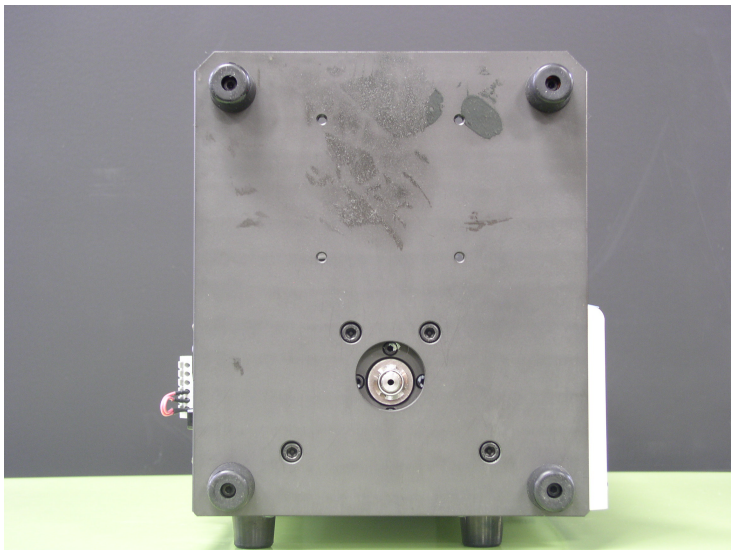
1. Detach the gage mounting plate from the stand.
   (The gage mounting plate is fixed with four M5 cap bolts.)
2. Attach and fix the gage to the gage mounting plate.
   Digital force gage: Four M4 x 10 cap bolts
   Push-pull gauge: Four M3 x 15 cap bolts
   (Different holes are used to mount the push-pull gauge and digital gauge.)
   * Fix the gauge firmly to the plate.
3. Attach the gauge mounting plate to the stand.
   Use the M5 cap bolts removed above.
   * Fix the mounting plate firmly to the stand.
4. Connect the supplied AC power cable to the body and a 100 to 240 VAC outlet. Connect the GND wire for safety.
5. Make sure that connection is done properly. Then, throw the POWER switch. (The STOP and MANUAL lamps go on.)
6. Determine the test speed.
   See the graph "Relationship between the SPEED control and speed of the Model-2257" and determine the speed as shown below.

   The sample is hard and the maximum load of measured values is low: Low speed
   The sample is rather soft: Middle speed
   The sample is soft and has a large elongation ratio: High speed

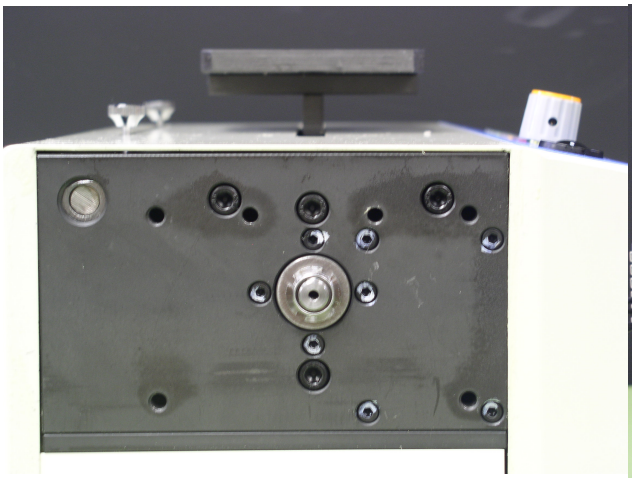
   The above merely show the standard for preventing damage and breakage of the measuring instrument.
   Be sure to start measurement from the low speed if the properties of the sample and the measurement load are unknown.
7. Jig
   The weight of the jig on the gauge side must be 15% or less of the maximum load.

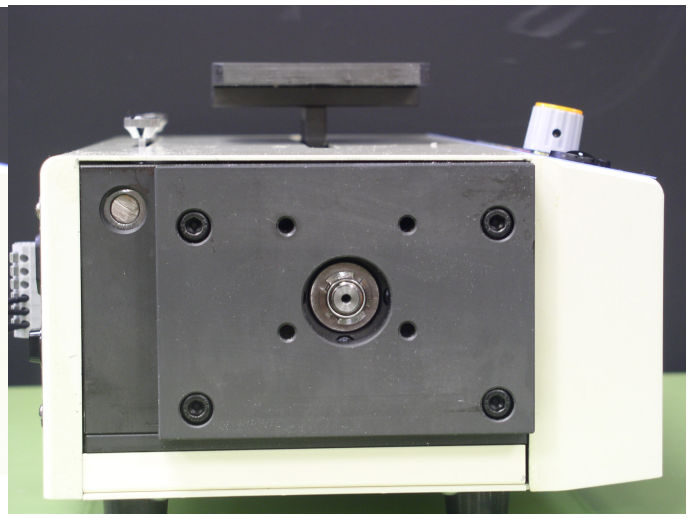
7. CHANGING VERTICAL TYPE INTO HORIZONTAL TYPE

1. Lay the stand on its side. Remove four M6 cap bolts from the bottom with the 5-mm wrench supplied with the test stand.
   The bottom plate is a steel plate. Be very careful.

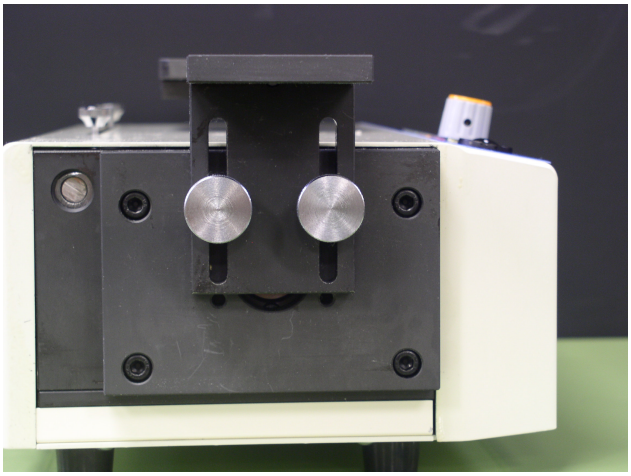


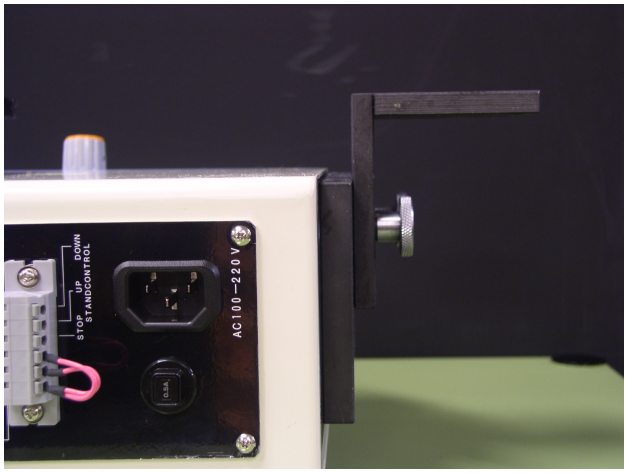
2. Attach the base plate for horizontal application with the M6 cap bolts removed above.



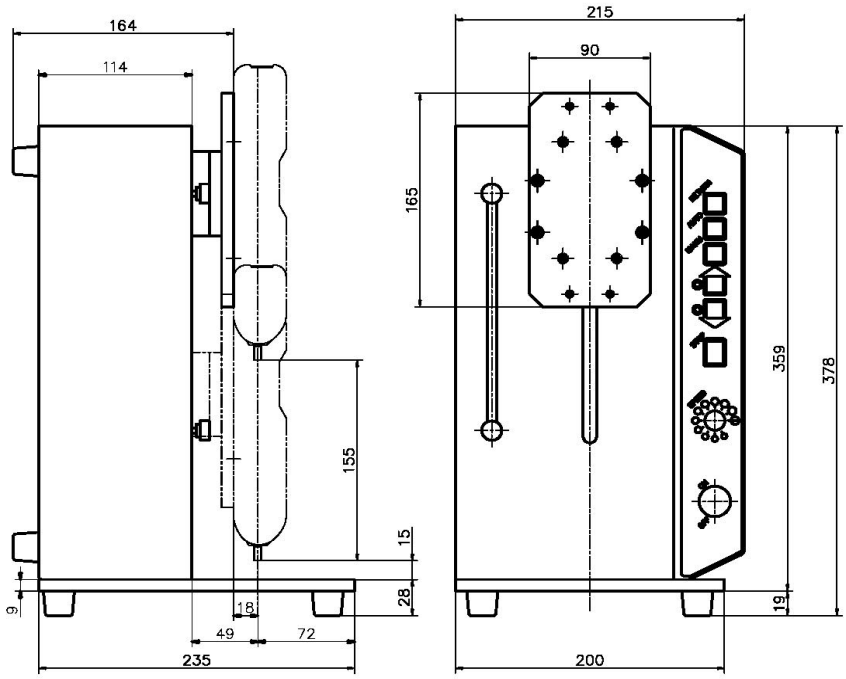


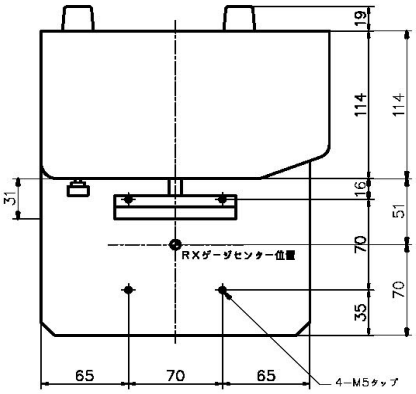
3. Tighten the L plate for horizontal application with the knob screws.





8. OUTSIDE DIMENSIONS





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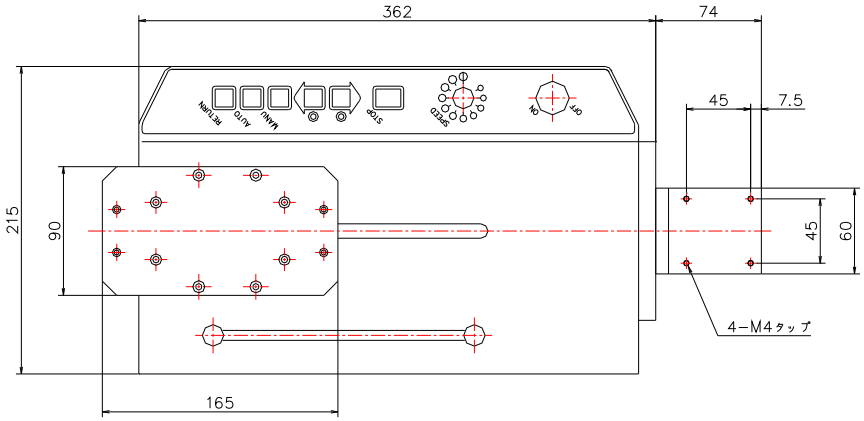

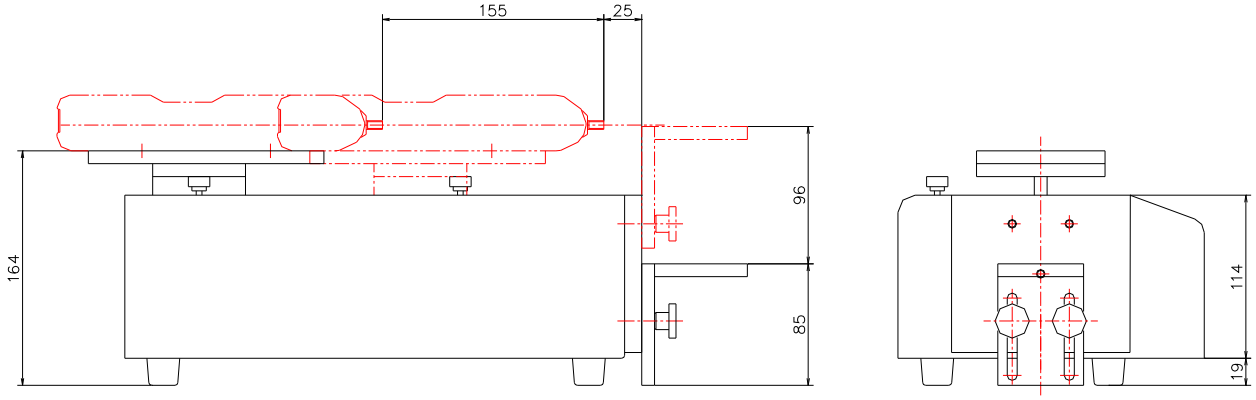

〒578－0984
アイコーエンジニアリング株式会社
大阪府東大阪市菱江2－15－7
TEL:(072) 966-9011
FAX:(072) 966-9017

AIKOH ENGINEERING CO.,LTD.
15-7, 2-Chome, Hishie, Higashi-Osaka city,
Osaka, 578-0984, JAPAN.
TEL: (072) 966-9011
FAX: (072) 966-9017

URL http://www.aikoh.co.jp