



IHARA SCIENCE

Innovative and Customizable Piping Solutions

Clean Tube Cutter ISTEC200 *MO Cutter Series*



Instruction Manual

This Instruction Manual and its operation procedures are explained together with warnings and cautions to be observed for safe operation.

- Improper operation could lead to unexpected accidents, as well as have adverse effect on the performance and shorten the life of the Tube Cutter.
- For applications not within this scope or this manual, it is requested the user performs responsibly, taking into full consideration its flexibility to the system being used and the condition under which it is to be used.

SAFETY PRECAUTIONS

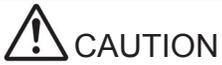
Prior to performing installation, operation, maintenance, and check of the Tube Cutter, carefully read this Instruction Manual and follow the instructions.

It is advised to become completely acquainted with the Tube Cutter and have full knowledge of matters related to its safety, as well as caution matters prior to engaging in the operation of the Tube Cutter.

In this Instruction Manual the matters related to safety and caution are classified into two categories, “DANGER” and “CAUTION”.



To apply when erroneously or improperly operated, serious death or major injuries could possibly result.



To apply when erroneously or improperly operated, injuries of medium and minor degree could possibly result.

Under certain circumstances, it is possible for matters described under  CAUTION to result in serious consequences. Matters described under both categories are all of vital importance and must be strictly observed.

WARNING

- Do not pull on the power supply cord. An electrical shock may result.
- When the light of the timer LED is illuminated, the main power is on. The main power must be turned off when installing, moving, replacing parts, and checking/performing maintenance. Turn off the main power before contacting the rotating part.
- When there is a power stoppage or when the motor over heating prevent unit functions, switch the power to [off]. When the equipment has been stopped by the power being turned off, by the action of the timer, and when there is a power failure followed by the power recovering again, the timer will reactivate and turn the power on, which will start the motor. The sudden starting of the motor can be dangerous and could cause accidents.

CAUTION

- When any abnormality arises, immediately cut off the power and stop the operation.
- The manufacturer shall be relieved of its warranty responsibility and shall not be liable for any modification performed by the customer. It is advised that the customer refrain from performing any modification.
- When any repair becomes necessary, contact the manufacturer or the place where purchase was made.
- No flammable or combustible materials shall be located near the motor.
- Do not place any material that would obstruct ventilation of the motor.
- When smoke, unusual smell or irregular sound is detected, immediately turn the power switch to [OFF] and disconnect the plug from the outlet.
- When returning the cam to the original position, replacing parts for changing size and removing chips, first check to ascertain the switch to be set at [OFF].
- Before setting the switch to [ON], ascertain the clamp lever to be turned toward [TIGHTEN] and the tube is firmly fixed.
- When using the before burr removing jig, wear rubber gloves to prevent slipping of the tube.
- ※ The cut off tube edge is sharp and precaution to prevent cutting the hand should be taken.
- When taking out the cut tube, turn the switch to [OFF] and after the rotation has completely stopped, take out the cut tube.
- ※ There is danger of burn.

■ MAINTENANCE

Perform regular maintenance on the Tube Cutter to ensure continuous satisfactory operation.

The following are regular maintenance checks:

1. Verify all rotating parts are running smoothly.
2. Check for any unusual sounds or odor.
3. Check motor for overheating.

■ IMPORTANT

 This mark is used throughout the instruction manual when an action is needed to correctly use the equipment.

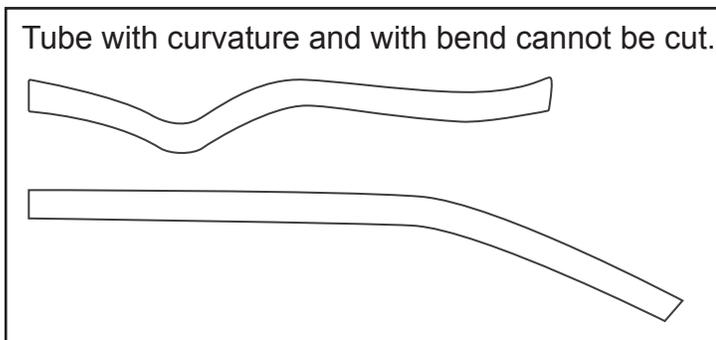
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■ FEATURES

1. The cut edge surface is precise and clean, and no further work is required on the cut edge.
2. For repeated cuts, use the built-in chuck.
3. With the auxiliary roller, the outer cutting edge is free of burrs.
4. Cutting fluid or water is not used and the cut pieces can be immediately welded after simply blowing with compressed air. Therefore, this Tube Cutter adaptable for clean room application.
5. Being compact and light in weight (5.8kg), this Tube Cutters feasible for carrying.

This Tube Cutter has been developed for semiconductor related piping, and it is recommended that the use of this Tube Cutter is limited to the scope of the following specification.



■ SPECIFICATIONS

Tube size and wall thickness:

1/4" (\varnothing 6.35mm), t 0.89mm, t 1.10mm

3/8" (\varnothing 9.53mm), t 1.0mm

1/2" (\varnothing 12.7mm), t 1.2mm, t 1.24mm

Tube material: 316LSS (Vacuum melt material is permissible.)

Outside dimensions: 8 21/32" (220mm) L X 7 31/64" (190mm) H X 7 7/8" (200mm) W

Weight: 12.8lbs. (5.8 kg)

Power source voltage: J TYPE : AC, 100V \pm 10%

K TYPE : AC, 220V \pm 10%

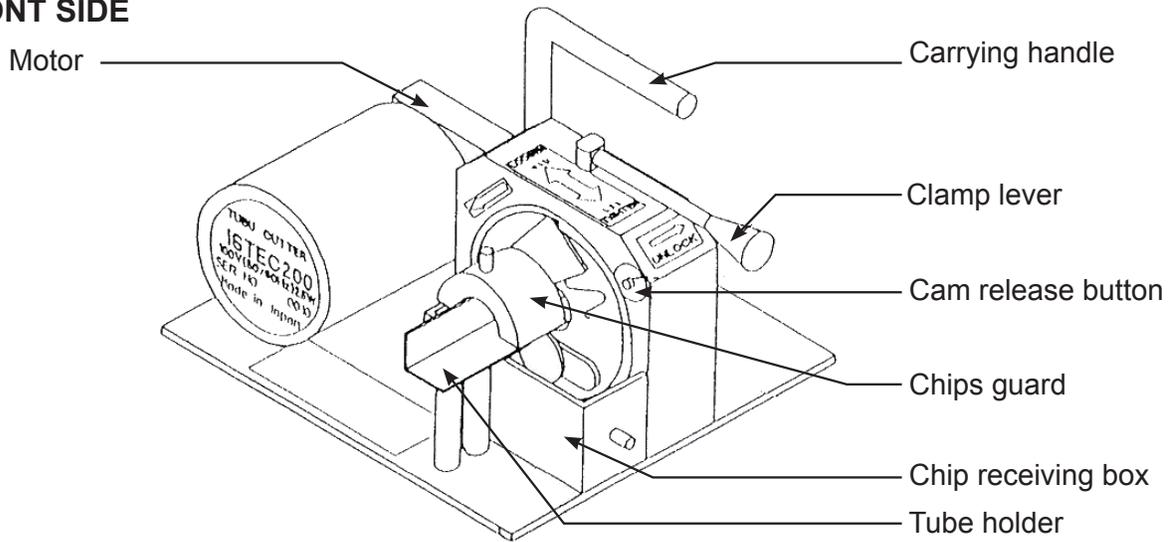
U TYPE : AC, 115V \pm 10%

Power source frequency: 50/60Hz

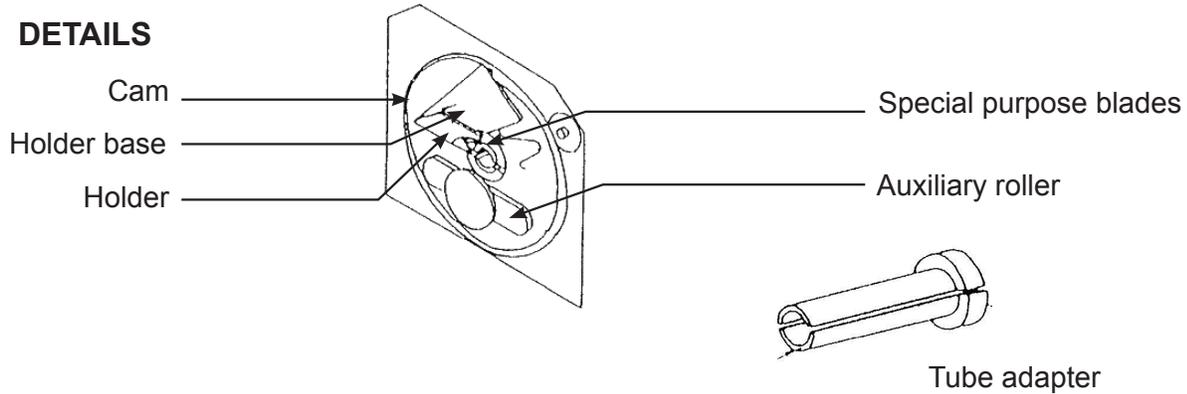
Temperature: 14°F (-10°C) to 40°F (104°C)

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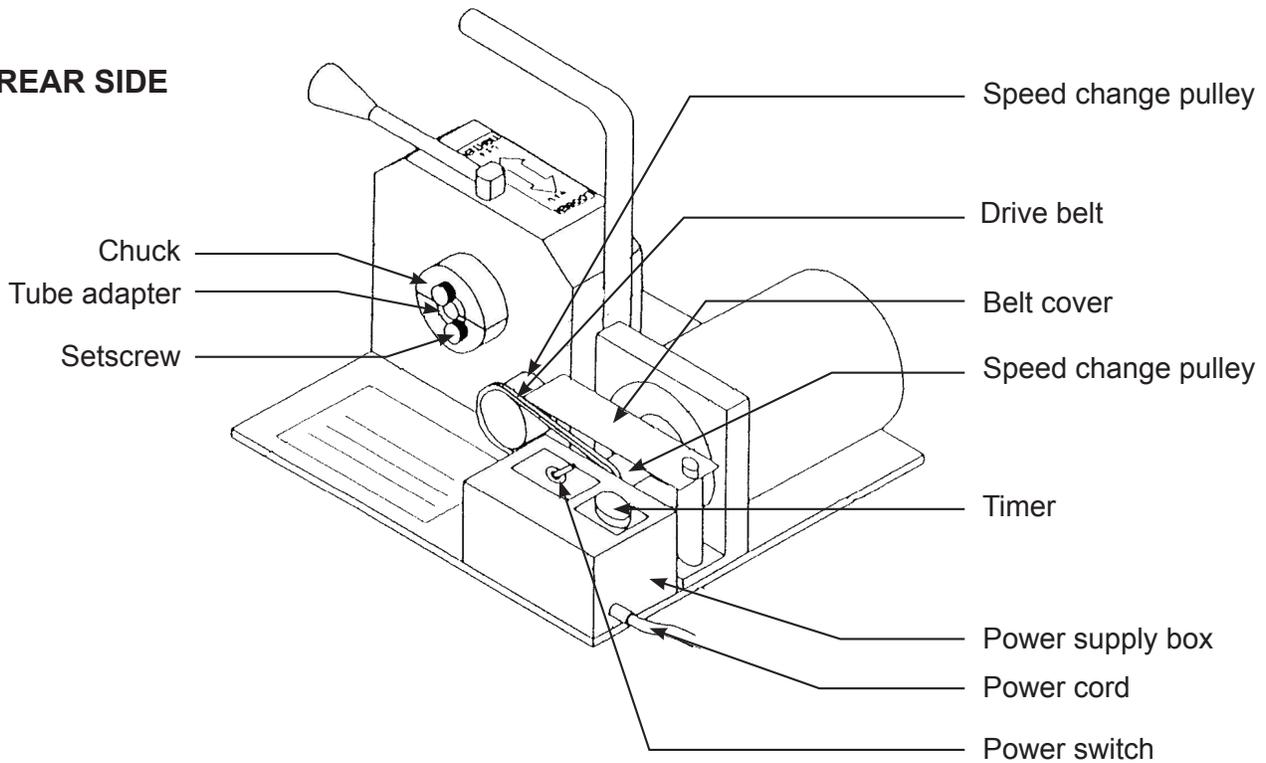
FRONT SIDE



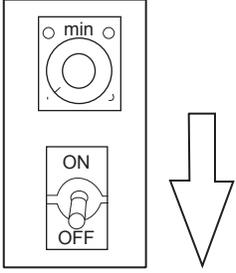
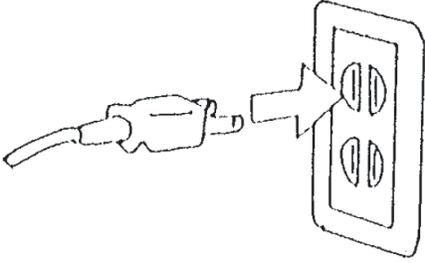
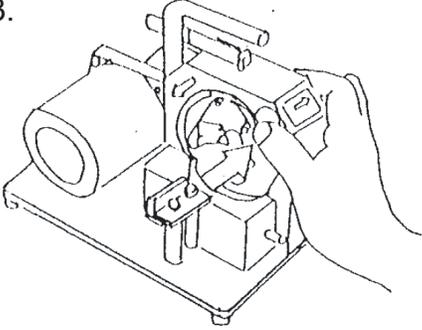
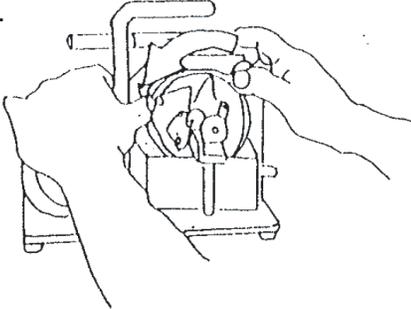
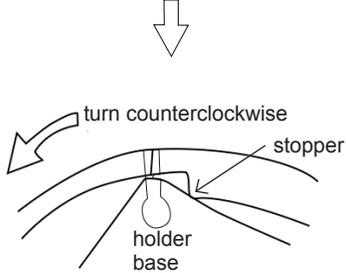
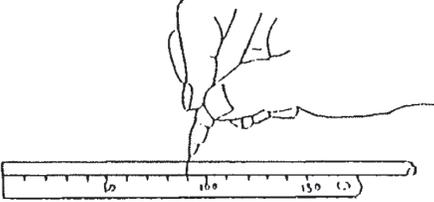
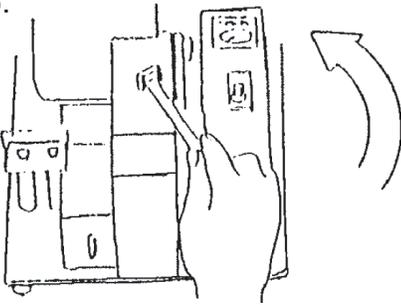
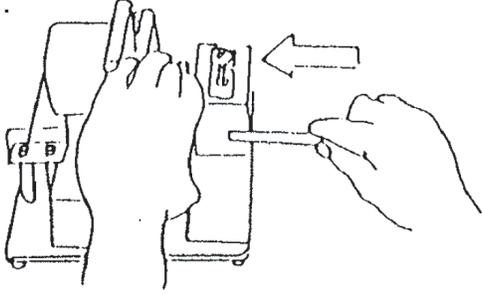
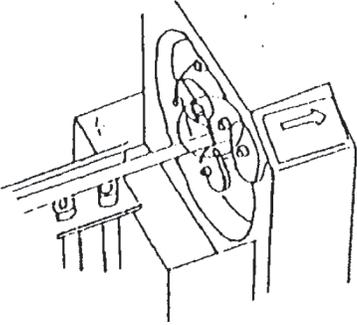
DETAILS

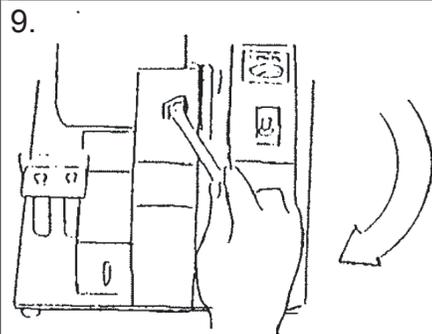


REAR SIDE

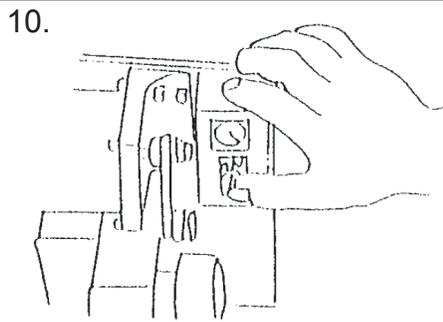


■ OPERATION PROCEDURE

<p>1.</p>  <p>Confirm power switch to be at [OFF].</p>	<p>2.</p>  <p>Insert the plug into the outlet.</p> <p>⚠ CAUTION</p> <ul style="list-style-type: none"> • Handling the plug with wet hands can result in electric shock which can be very dangerous. • Hold the plug (not the cord) when disconnecting the plug from the outlet. 	<p>3.</p>  <p>Press the cam release button. (The cam release button pressed, and the cam can then be freely moved.)</p>
<p>4.</p>  <p>With the cam release button pressed, turn the cam to the left (the direction of the arrow) until the original position is reached. Listen carefully to the cam release button clicking and check to confirm the cam to have been locked.</p>		<p>5.</p>  <p>Mark the cutting position on the tube.</p>
<p>6.</p>  <p>Turn the clamp lever towards [LOOSEN].</p>	<p>7.</p>  <p>Insert the tube from the chuck side. (Exercise care not to touch the cutter blades.)</p>	<p>8.</p>  <p>Set the cutting edge of the cutter blade to the cutting mark on the tube.</p> <p>! When inserting the tube, care should be exercised so as not to contact the blade.</p> <p>The outer diameter of the tube will be scratched.</p> <p>(The width of the blade is 1 mm and when setting the cutting position, make allowance for this width.)</p>



Turn the clamp lever towards [TIGHTEN] and firmly fix the tube.
! Fix the tube firmly until the tube does not move. When the tube is long provide a supporting clamp so that the tube can be held straight.



Set the timer to the setting time and turn the main power switch to [on].
! The cutter will rotate and start cutting. ! The timer setting will vary according to the size of the tube to be cut.

The following times are guidelines for setting the timer according to the sizes of the tube.

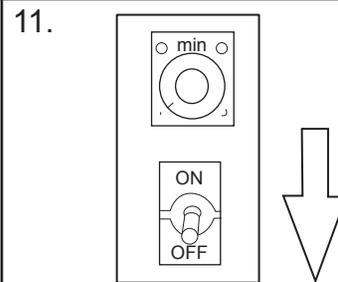
1/4"	1 minute
3/8"	1 minute 30 seconds
1/2"	1 minute 45 seconds

! WARNING

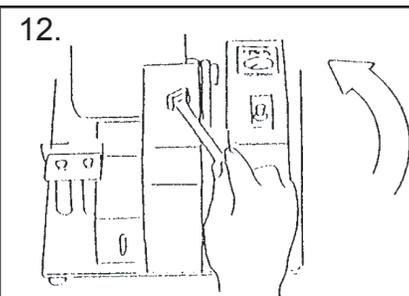
- Under no condition should the rotating part be touched when in rotation.
- When the tube is cut, the cut tube may flip and it is necessary to keep a safe distance.

! CAUTION

- Using the timer to return to the start position can cause failures and should not be done. Perform returning to the start position manually in accordance with operation procedure 4.
- Do not adjust the timer while in operation. Adjusting the timer during operation can cause failures.



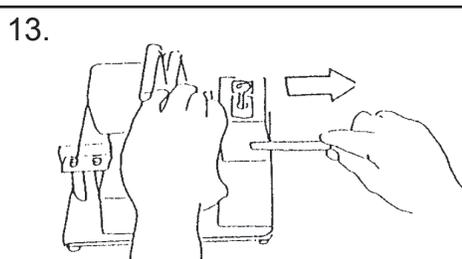
Turn the power switch to [OFF].
! When the light of LED of the timer is on, the timer has operated and the power is off. The main power must be turned off even when the timer has activated and the power has been turned off.



Turn the clamp lever towards [LOOSEN] and remove the tube. (when continuing to further cut the tube, advance the tube and repeat the operation procedure from section 8 above. Remove the tube from the clamp lever side.

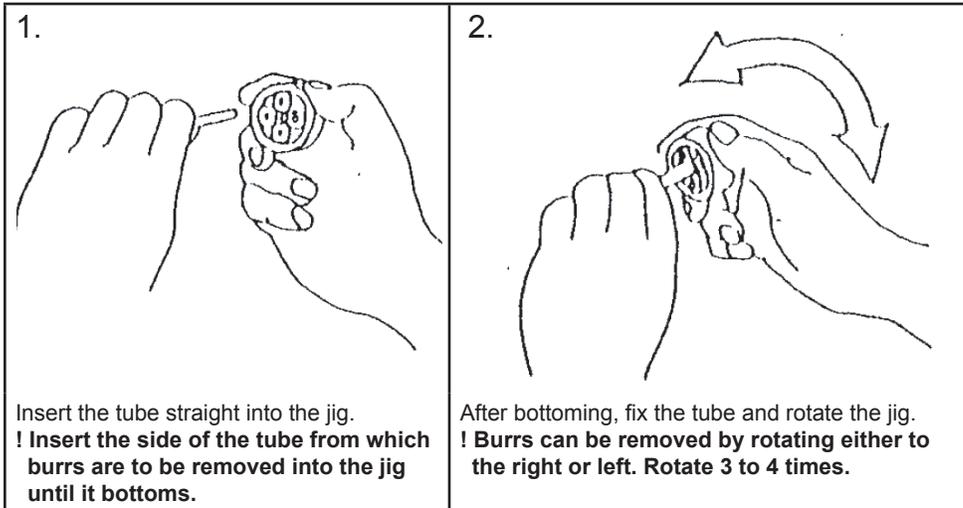
! CAUTION !

Perform this work only after switching the power switch to [OFF] and the cutter has come to a complete stop. There is a possibility of the motor suddenly starting and causing an unexpected accident.



THIS COMPLETES THE TUBE CUTTING OPERATION.

■ REMOVING BURRS FROM THE BORE



■ REPLACING CUTTER BLADES

The cutting tool is common for all sizes and there are 2 places for each blade. The standard accessories include 3 blades. The standard accessories also include 1 holder for each respective sizes.

! Prior to performing the operation, the cam must be to the start position (operation procedures 3 and 4)

⚠ CAUTION

This operation must be performed with the plug disconnected from the outlet.

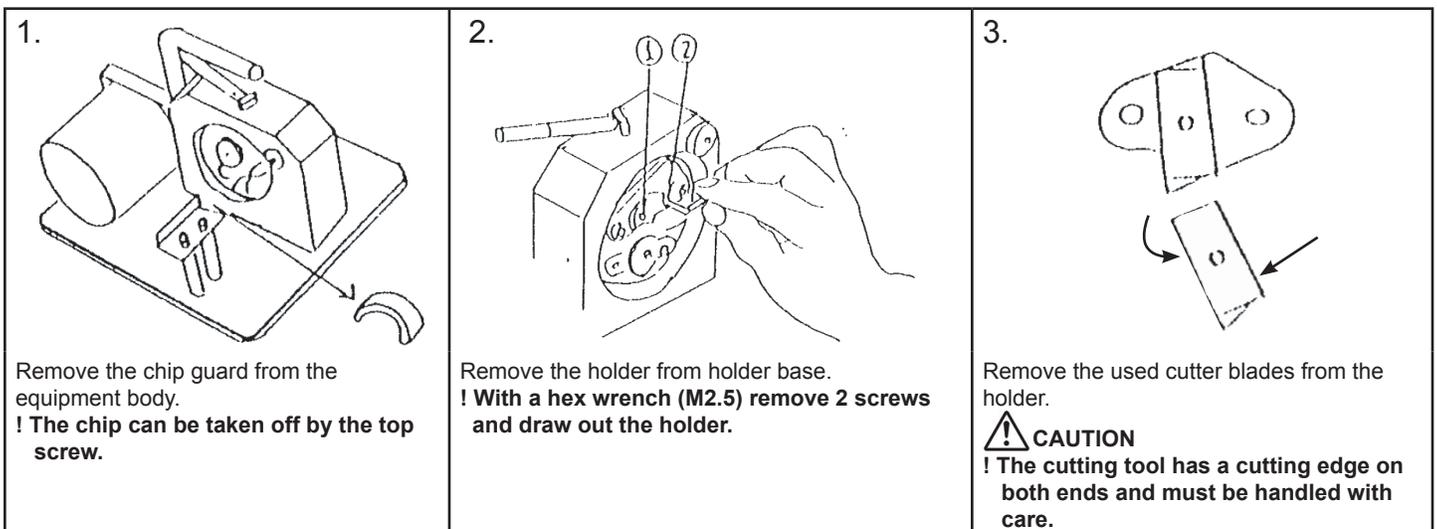
[Reference] • Guideline of cutting tool life

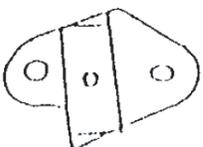
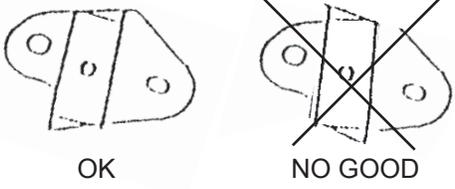
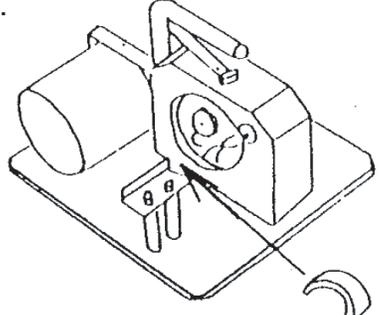
1/4" 100 places/corner

3/8" 50 places/corner

1/2" 40 places/corner

The life of the cutting tool may vary with the surface hardness of the tube bending cut.



<p>4.</p>  <p>Set new blades into the holder.</p> <ul style="list-style-type: none"> • The cutter blade has cutting edges on both sides and therefore must be handled with care. • Set the pin for matching the holder position so the pin exactly fits the hole of the cutter blade. • Check and confirm the direction the cutter blades are facing. • Use the holder to which the used cutting tool had been set. 	<p>5.</p>  <p>Attach the holder to the holder base.</p> <ul style="list-style-type: none"> • Check and confirm the direction the cutter blades are facing. 	<p>6.</p>  <p>Replace the removed chip guard back to the equipment body.</p> <p>! Attach the chip guard by screwing down the screw on top.</p>
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■ OPERATION PROCEDURE FOR TUBE SIZE CHANGING

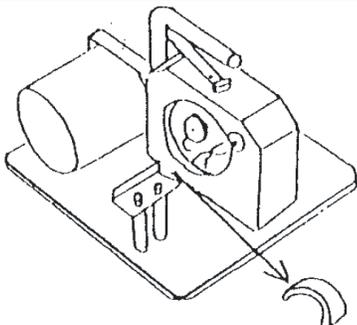
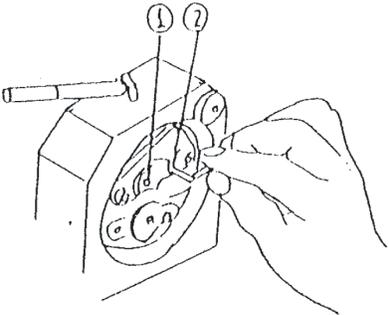
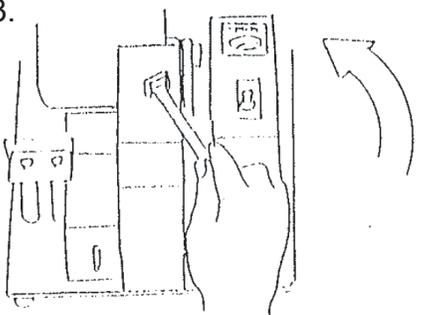
- Changing tube size can be readily performed by replacing 2 parts.
- Prior to performing this operation, return the cam to the original position (operation procedures 3 and 4).

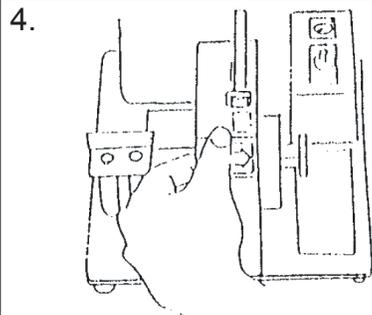
⚠ CAUTION

This operation must be performed with the plug disconnected from the outlet.

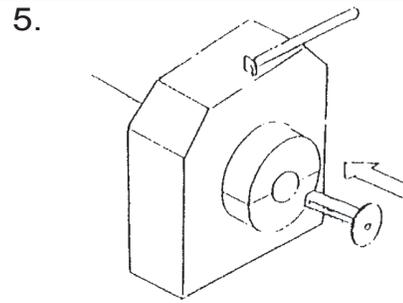
(Parts to be replaced)

1. Holder
 2. Tube adaptor
- ※ Although part replacement is not involved, the position of the drive belt must be changed to match the tube size.

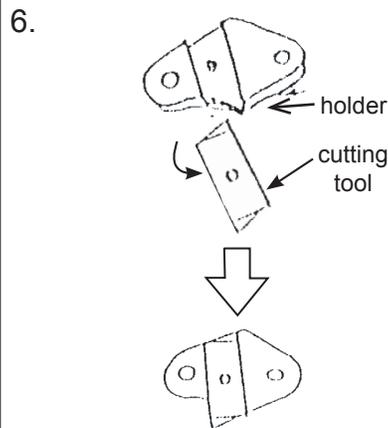
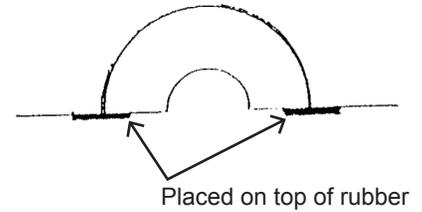
<p>1.</p>  <p>Remove the chip guard from the equipment body.</p> <p>! The chip guard can be taken off by the top screw.</p>	<p>2.</p>  <p>Replace with the holder with a holder of the changed tube size.</p> <ul style="list-style-type: none"> • Remove 2 screws with a hex wrench (M2.5), which is provided and take out the holder. 	<p>3.</p>  <p>Turn the clamp lever and loosen the chuck.</p>
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4. Remove the tube adapter from the chuck.
! Remove the set screw for the tube adapter from the chuck, then push out the tube adapter from the cutter side and remove the chuck.



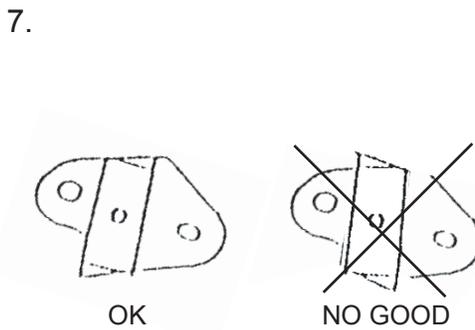
5. Replace the tube with the changed size tube adapter and set the changed tube adapter to the chuck.
! The 1/4" size tube adapter has 1/4" indicated on the flange and on the side, and for 3/8" size 3/8" size is indicated.
! In the case of 1/2" size the tube adapter is not used and the tube is inserted into the chuck.
! The bottom adapter is set along the chuck, and fixed with a set screw. The flange part of top adapter is placed on top of the rubber claw of the chuck and fixed with the set screw. The cutter side of the top adapter will be hanging down but when the tube is inserted and the chuck is tightened, it will come tight contact with the chuck.



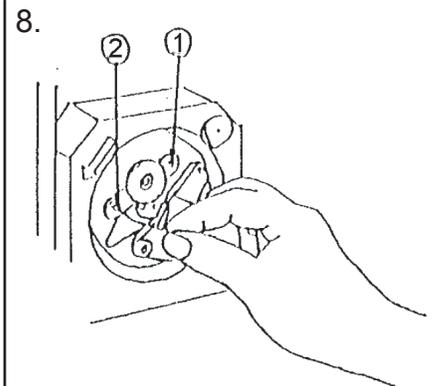
6. Set the cutting tool to the changed tube size holder.
! The 1/4" size holder will be stamped with a figure 4, the 3/8" size holder with a figure 6 and the 1/2" size holder with a figure 8.

! CAUTION

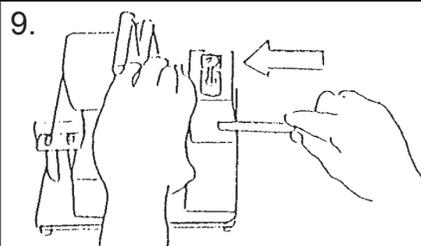
- The cutting tool has a cutting edge and must be handled with care.
- Set the pin for positioning so the holder can be positively inserted into the cutting tool hole.
- Check and confirm the direction the cutting tool is facing.



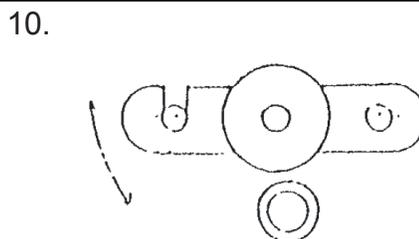
7. Attach the holder base.
! Check and confirm the direction the cutter blades are facing.
! Remove one screw with the hex wrench (M2.5) which is provided.



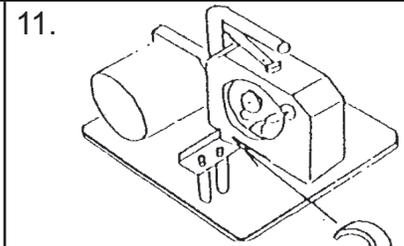
8. Loosen the bolt fixing the holder base auxiliary roller.
! Loosen the 2 bolts with the accessory hex wrench (2.5mm) and set the auxiliary roller in a free condition.



9. Insert the changed size tube, then tightened the chuck and fix the tube .



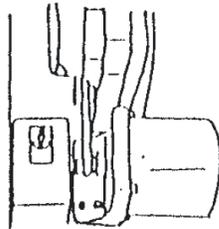
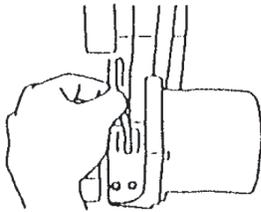
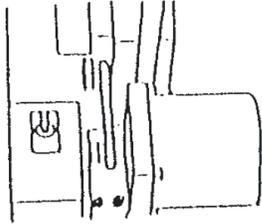
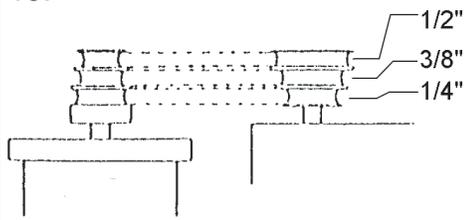
10. Set the auxiliary roller so that the roller contacts the outer diameter of the bolt and fix.
! Tighten the 2 bolts with the accessory hex wrench (2.5mm) and fix the auxiliary roller.



11. Attach the chip guard to the equipment body.
! Tighten the top screw and fix.

12. Remove the belt cover.
! Loosen the belt cover bolt with the accessory hex wrench (3mm) and remove the belt cover.

13.



Reset the position of the drive belt to match the speed change pulley and size to be cut.

14.

Install the belt cover.

! Tighten the belt cover bolt with the accessory hex wrench (3mm) and fix the belt cover.

■ BEFORE TAKING THE EQUIPMENT FOR REPAIR

Situation	Confirming	Troubleshooting
Tube is not being cut	Is the light of LED of the timer on?	First turn off the main power switch.
	Are the cutter blades correctly intalled?	Check the direction the cutter blades are facing.
	Are cutter blade worn or cipped?	Replace with new cutter blades.
	Do the tubesize and holder size much?	Replace with correct size holder.
Burrs on outer surface	Is the tube cutting speed proper for the size?	Mach the position of the drive belt to the proper pulley size position.
	Do the tube size and auxiliary roller size mach'?	Set to proper position.
	Is the auxiliary roller properly contacting the tube?	Properly contact the auxiliary roller to the tube and then set.

CAUTION

- **Set the equipment in the correct position when using.**
- **When malfunction occurs, immediately turn off the main power switch.**
- **Do not perform modification to the equipment.**

■ ACCESSORIES

The following items are included as standard accessories:

- Holder (1each for size 1/4", 3/8" and 1/2")
- Blade (3 blades)
- ID deburring tool each for size 1/4", 3/8" and 1/2"
- Tube adapter (1 set for size 1/4" and 3/8")
- Hex wrench (1each of size 2.5mm, 3mm, 5mm)
- Tool box
- Instruction manual

© Information of option items

It is strongly recommended that genuine Ihara items are used for reliability and safety.

The following option items are available for ISTECH 200 type MO cutter:

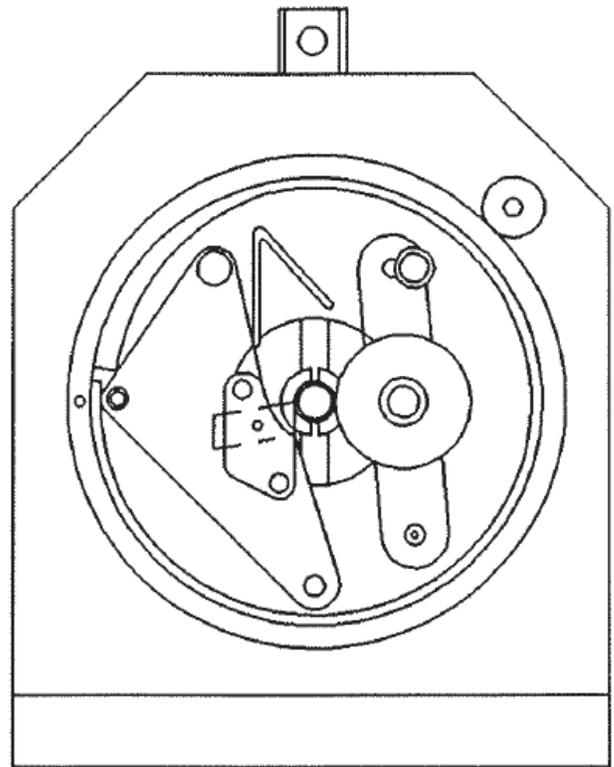
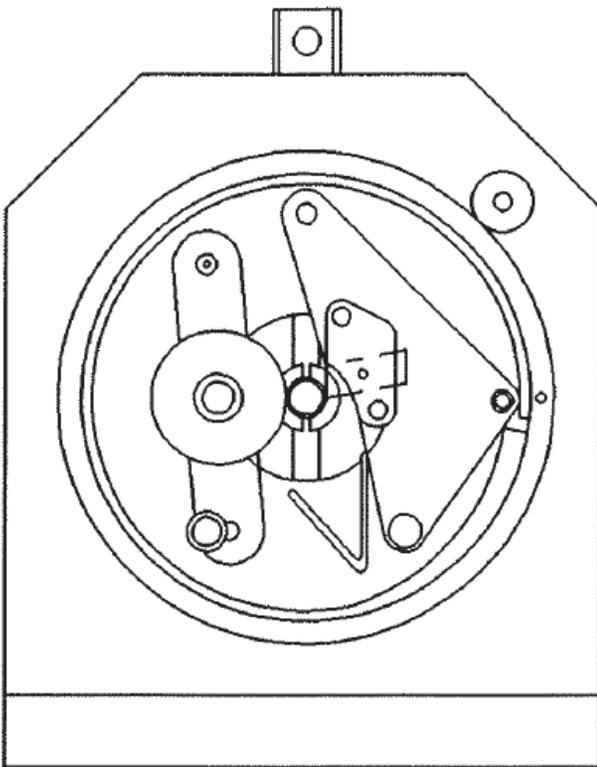
- Blades
- ID deburrer
- Scale (for measuring the cut length)

THIS ADDITIONAL SUPPLEMENT VERSION CONTAINS IMPORTANT INFORMATION RELATING TO HANDLING AND IT IS ESSENTIAL THAT THIS IS CAREFULLY READ.

In the procedure 7 (page 11) contained in the operation procedure and the procedure 9 (page 11) contained in the operation procedure for changing tube size:

Before inserting the tube from the chuck side, check to ascertain that the blade is at the position shown in either one of the drawings shown below.

However, if the blade is not at either one of the positions shown, move the cutter by hand so that the blade would come to one of the position shown. The tube may be scatched by the blade or by the supplement roller.



1. Reprinting any part or this Instruction Manual without prior approval is strictly prohibited.
2. The content of this Instruction Manual may be changed without notice in the future.
3. The content of this Instruction Manual has been prepared with all possible care, but in the event any ambiguity, error or oversight is noted, please contact our sales office.
4. Please be advised that the manufacturer shall not be responsible for any results from use of the equipment regardless of section 3 above.