

# MT-05U Mask Fitting Tester

When wearing a dust protection mask, you need to select a mask that suits your face and wear it properly!!

## What is a Fit Test?

A test, for selecting a mask that fits an individual's face, is called a Fit Test.  
The MT-05U can perform this fit test quantitatively.

## Differences from previous MT-05 model

- Daily check mode added
- Condensation reduction feature enhanced
- PC communication capability added
- Soft case included as standard
- Particle generator available (option)

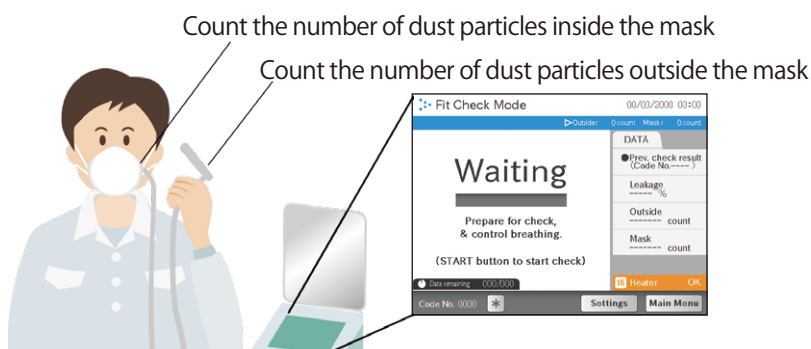


## What is a Fit Check?

When you use a mask selected in a Fit Test, the routine check to ensure that the mask fits well each day, is called a Fit Check. The MT-05U can perform the fit check quantitatively.

# What is a Mask Fitting Tester?

- A tester that counts the number of dust particles outside and inside the mask, and obtains the penetration rate (leakage rate %) of dust into the mask.
- The tester uses the dust floating in the room or sodium chloride particles generated by a particle generator (option) as test particles. We recommend that a particle generator is used when the dust particle count is low.
- A test guide or tube joint set is used to measure the mask leakage rate.



## Important points when wearing a mask

Make sure that the mask fits your face snugly and that you are not inhaling harmful dust or germs.

## First, perform a Fit Test

The size and shape of everybody's face are different, and selecting a mask that suits each individual is important for protecting their health. The MT-05U can perform a quantitative Fit Test that helps to select a mask, which fits each individual.

## Routine checks using Fit Check

When using the selected mask each day, the wearer checks how well the mask fits before entering the workplace.



## The MT-05U Mask Fitting Tester Capabilities

Before measurement using Fit Test mode.....

### Check Measurement Environment and Tester Status Using Daily Check Mode!

This mode checks whether the number of particles in the measurement environment is sufficient, and whether the tester is operating normally when performing a Fit Test. We recommend that you use a particle generator (option) in environment where the number of particles is small.



Selecting a mask that fits your face.....

### Quantitative Fit Tests Using Fit Test Mode!

This is a measurement mode for selecting a mask that matches the shape of your face by performing several specified exercises while a tube joint (or test guide) is attached. Displays the measurement results (leakage rate, and protection factor or fit factor) for each specified exercise and also for all exercises.



When you find a mask that fits your face .....

### Routine Checks Using Fit Check Mode!

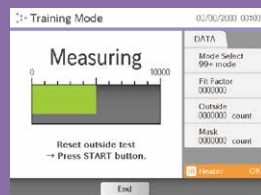
This is a measurement mode that can perform a check in 30 seconds at the shortest using the test guide. Suitable for routine checks of how well the mask fits. The fitness can be checked easily before going into the workplace, and the person wearing the mask can then go directly into the work area while still wearing the checked mask.



When the mask does not fit well .....

### Check Where Leak is Occurring Using Training Mode!

In this measurement mode, the penetration rate of dust particles into the mask can be easily displayed in real time using a test guide or tube joint set. The fitting of the mask can be checked at a glance as a number and a bar graph. Ideal for checking and teaching how to wear a mask.



## The MT-05U Can be Used in These Kinds of Locations!

### Medical

- Selecting a N95 mask etc. that suits your face
- Training on how to fit and wear masks

### Industrial

- Measure the protection factor of respirators used in areas that handle materials such as indium or refractory ceramic fibers
- Fit mask and perform a Mask Fit check before entering the workplace

### Other

- Education for workers who need instruction and training on how to fit and wear masks
- Selection of suitable masks at locations where filter performance must be demonstrated

## To Reduce Condensation

Condensation may occur inside the tube when taking measurements. There is a slit on the side of the MT-05 series, and by inserting a test guide, outside air can be ventilated through the tube to reduce condensation. In addition, on the MT-05U, the condensation reducing function can be performed automatically without using a test guide.



## Fit Test

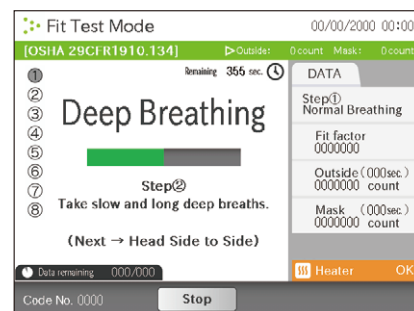
This is a test to select a mask that fits your face.

Several types of specified exercises are performed during measurement, and the measurement results for each exercise and the overall result are acquired. In addition to the methods (protocols) described in the Japanese Industrial Standard (JIS), protocols such as the US OSHA protocols are included.

### (Example) In the case of the OSHA 29 CFR 1910.134 standard

The following specified exercises are performed for one minute each (⑥ for 15 seconds), and measurements for each exercise are made.

- ① Normal breathing
- ② Deep breathing
- ③ Shaking head side to side
- ④ Moving head up and down
- ⑤ Talking
- ⑥ Grimace
- ⑦ Bending over
- ⑧ Normal breathing



## Basic Fit Check Procedure

- ① Put on the mask
- ② Insert the test guide, which is connected to the 'MASK' side, between the face and the mask
- ③ Check the fitting of the mask again.
- ④ Hold the test guide connected to the 'OUTSIDE' side near the face
- ⑤ Press 'START' button (measurement can be taken in 30 seconds at the shortest!)
- ⑥ The pass/fail result and numerical results (count and fit factor) are displayed on the screen.
- ⑦ If the check fails, re-check the fitting of the mask or replace the mask with a different type or size and make the measurement again



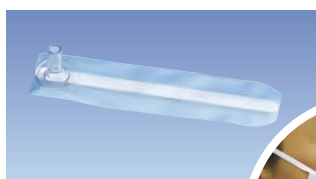
## Two Types of Measurement

### Test Guide (non-destructive mask test)

Because it does not require any processing such as opening a hole in the mask (non-destructive mask test), the wearer can enter the workplace directly with a mask whose fit has been confirmed. It is suitable for routine fit checks!

### Tube Joint Set (open a mask hole)

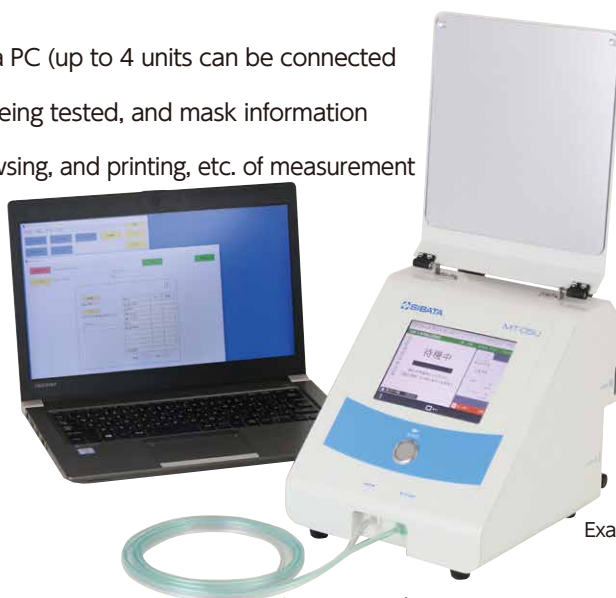
Fixing the tube directly to the mask (open a mask hole) reduces the risk of the tube falling out of the mask during measurement. It is suitable for a Fit Test mode that involves body movement during measurement.



Tube Joint Set

## Communication function between PC and MT-05U

- The MT-05U can be controlled from a PC (up to 4 units can be connected simultaneously).
- Information about a subject, who is being tested, and mask information can be stored in a database.
- The set up enables the recording, browsing, and printing, etc. of measurement results for each measurement mode.
- Measurement results can be saved in CSV format and it is processed using commercially available spreadsheet software, such as Excel.



Set up example

Fit Test Report				
2019/02/13				
ID No.	1111	Operator	Operator	Operator
Last Name	BA	Company	Company	Company
First Name	BA	Mask Size	Mask Size	Mask Size
Test Date	2019/02/13	Test Time	10:00	10:00
Test Result	Pass	Fit Factor	0.000000	0.000000
Step	Exercise	Duration (sec)	Fit Factor	Result
1	Normal Breathing	60	0.000000	Pass
2	Deep Breathing	60	0.000000	Pass
3	Head Shaking	60	0.000000	Pass
4	Head Bending	60	0.000000	Pass
5	Talking	60	0.000000	Pass
6	Grimace	15	0.000000	Pass
7	Bending over	60	0.000000	Pass
8	Normal Breathing	60	0.000000	Pass
Overall			0.000000	Pass
Operator: S				
Name: TENDO-BABA				
Note:				
Fit Test Card				
Operator	BA	Company	Company	Company
Test Date	2019/02/13	Test Time	10:00	10:00
Test Result	Pass	Fit Factor	0.000000	0.000000
Mask Size	Mask Size	Mask Size	Mask Size	Mask Size
Printed: 2019/02/13 10:00				

Example of printing measurement results



## Features

- With a single detector (particle counter), MT-05U measures the number of particles in the room (outside the mask) and inside the mask alternately to quantify how tightly the mask fits the face. As a result, errors due to differences in detector characteristics are reduced.
- There are four modes: Daily Check mode, Fit Test mode, Fit Check mode, and Training mode, that enable a user to use according to the application.
- Measurements can be made using a test guide (non-destructive mask test) or a tube joint set (open a mask hole).
- Automatic recording function for measurement results (Daily Check mode, Fit Test mode, and Fit Check mode).
- MT-05U communicates with PC using a USB cable.
- Leakage rate can be measured while the fitting of the mask is checked by using attached mirror.

### Main specifications

Item code	090200-08
Model	MT-05U
Intended measurement	Mask-to-face fit evaluation
Measurement items	Particle count, Leakage percentage, and Fit factor
Principle of measurement	Particle count concentration measurement by laser beam scattering (determination of dust particle count ratio between indoor air and in-mask air)
Measurement ranges	Counting range: 0 to 9999999 counts Leakage percentage: 0 to 100% Fit factor: 1 to 1000000
Suction flow rate	1 L/min
Built-in functions	Leakage percentage and Fit factor calculation functions; heating tube temperature control function; dryer function; RS-232C output function; USB communication function; and logging function (up to 200 logs for each of Fit Check, Fit Test, and Daily Check)
Usage environment	0 to 40°C, 30 to 90%RH (no condensation)
Power supply	100 to 240 ±10% VAC, 50/60 Hz, approx. 0.5 A
Main unit dimensions	210 (W) × 240 (D) × 232 (H) mm (excluding protrusions)
Main unit mass	Approx. 3 kg
Accessories	One AC adapter (fitted with a plug; supplied with four spare plugs) Two pcs of Sampling tube (pair tube) 1.5 m One strap clip One high-performance zero check filter One Tube joint set type M 100 pairs/set One Tube joint attachment tool type M Two suction port caps One external output connector cap One USB connector cap One CD-ROM (Communication software, USB driver, Operation manuals) One USB cable (A-mini B) One Soft case One Manufacturer's inspection and calibration certificate

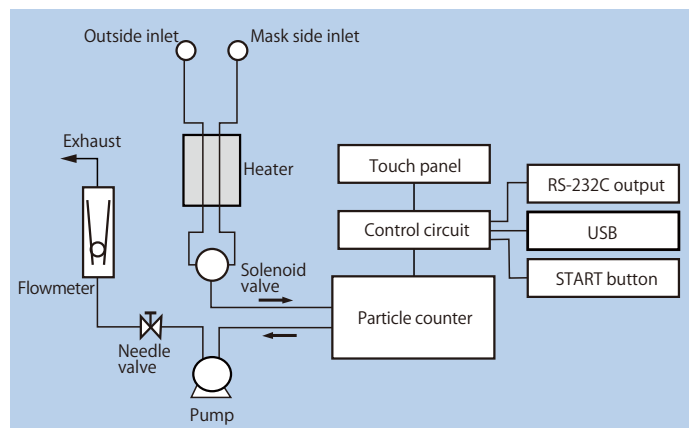
- Safety standard : CE, FDA, Code 95R-EN, and not explosion proof.
- The above specifications and the accessories may be subject to change for improvement or other reasons, provided that the functions and performance of the product are not affected.

### Consumables and spare parts

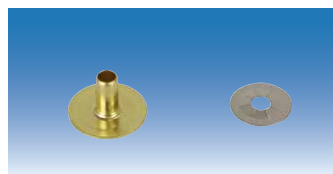
Item code	Item name
080200-0821	Tube joint set type M 100 pairs/set
080200-0831	Tube joint attachment tool type M
080200-084	Sampling tube (pair tube) 1.5 m x 5

### Options

Item code	Item name
080200-075	Particle generator
080200-0751	Salt tablets (100 each/bottle)
080200-085	Test guide 10 pcs/set



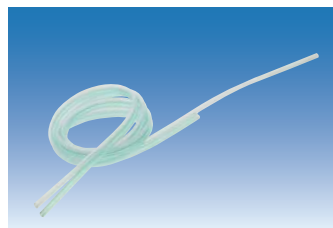
Block diagram



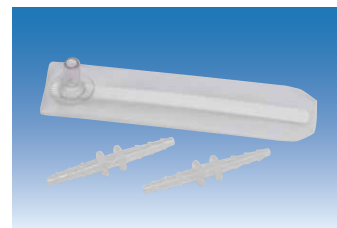
Tube Joint Set Type M 100 pairs/set



Tube Joint Attachment Tool



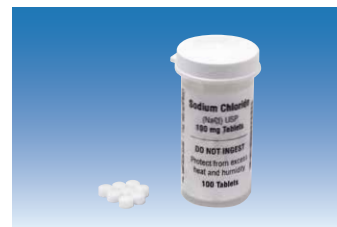
Sampling tube (pair tube)



Test Guide



Particle Generator

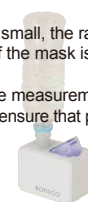


Salt Tablet

If the number of particles in the measurement environment is small, the ratio of the number of particles inside and outside the mask is reduced, so even if the mask is fitted correctly, it may fail the test.

The particle generator increases the number of particles in the measurement environment by spraying distilled water in which salt tablets are dissolved to ensure that pass/fail judgments using the MT-05U are appropriately made.

\* Prepare the PET bottle separately.



- Specifications and appearance described in this document are based on information as of April 2019. ● The color of actual products may differ to that color in this data sheet.
- Before using MT-05U, please read the operation manual.

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