

# Operation Manual for **Mistresa**

CRL-H22



# Introduction

Thank you for buying our **Mistresa** mist collector.



This is a mist collector with a large air capacity ideal for the open-type machining center and similar facilities. You are requested to read through this manual so that your Mistresa may be able to fully display its capability serving you for many years to come without a hitch.

It is recommended that you keep the manual on hand for quick reference.

This manual provides information about Mistresa CRL-H22 Standard from its installation and usage.

## Symbols used herein

The symbols and headwords found in this manual respectively have the following meaning:

 <b>Warning</b>	If failed to observe the relevant instructions, it could cause death or serious injury.
 <b>Caution</b>	If failed to observe the relevant instructions, it could cause injury or property damage.



indicates what must not be done.



indicates what requires the use of good care.



indicates what must be done.

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## **Warning**



Any Mistresa must not suck the following things:

- **a lit cigarette or match, hot dust**

The filter is combustible and liable to ignite and cause a fire.

- **flammable gases from petrol, thinner, etc.**

Sparks from the incorporated electric components, static and contact of metals can cause an explosion.



Do not operate the Mistresa with its maintenance door opened because it could be closed by negative pressure inside catching your fingers and/or the motor overloaded.

## **Caution**



The Mistresa should not suck the following things which can cause it a failure:

- **Hot gas**

The gas heated to 40°C or more would deteriorate the insulation of electric components inside the mist collector.

- **Gas containing a great amount of fines and dust**

The filter can be blinded.

- **Solids** like work and tools

The duct and filter can be broken.



Do not get on Mistresa; its deformation or a fall from it could result.



Do not apply pressure on Mistresa by a pressurizer.



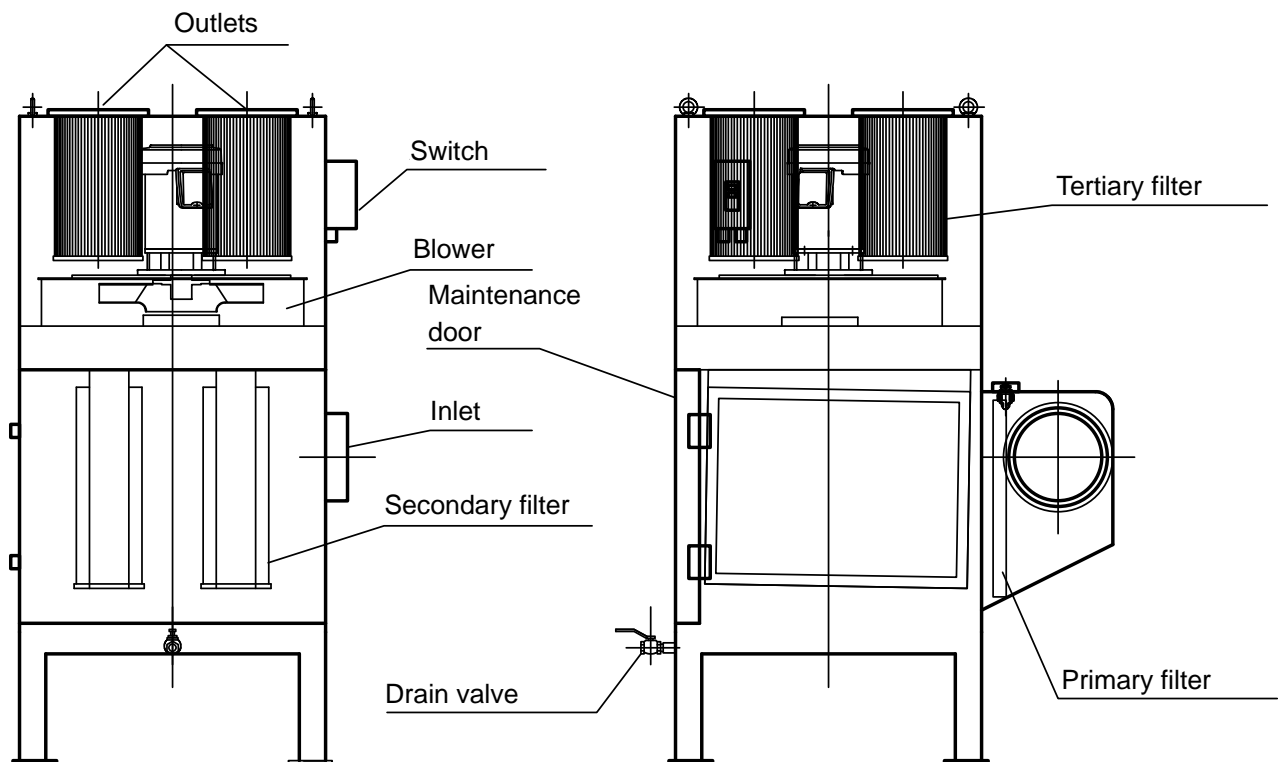
Never increase the operation speed more than design speed using an inverter because it could damage the incorporated blower.

## Chapter 2 Outline of the mist collector

### Configuration of the CRL-H22

The mist sucked from the inlet is sent to the primary filter box where coarse particles and foreign matter are captured. Then, the mist goes into the secondary filter where most part of the mist is captured before going through the blower into the tertiary filter that collects very fine particulates and discharges the remainder as gas into the atmosphere. The mist captured in the primary and secondary filters turn into liquid which is collected at the bottom of the machine body and discharged from the drain valve.

### Components



## **Chapter 3 Installation**

Upon receiving the product, please examine its nameplate to see if the type, voltage and frequency indicated on it conform with those of the ordered product. Also, check up the accessories for conformity. In case of any damage to the product caused during transportation or a shortage of parts, please immediately contact the relevant retailer or a nearby branch or sales office of Showa Denki.



Install the dust collector in a place fulfilling the following conditions:

### **Indoor places not get wet by rainwater**

The standard product is for indoor use. For installation, avoid places liable to get wet that may induce an electric shock and a product failure.

### **Places not exposed to hot gas**

Use the machine in an atmosphere of an ambient temperature at 5°C to 40°C.

Deterioration of electrical components, a machine failure and an electric shock could be caused.

### **Horizontal places free from vibrations**

Unusual vibrations could cause the product topple over. Also, the drain would not be discharged normally.

### **No hazardous chemicals stored around**

Places close to stored petrol, thinner, and other flammable chemicals have the possibility of an explosion and/or a fire. Also, the machine and its components could be corroded near hydrochloric acid, sulfuric acid, or other chemicals that produce corrosive gases.

### **Places easy for maintenance**

Secure a space of about 700 mm around the machine for the convenience of filter replacement, duct connection and air discharge.

## **Installation**



- When moving the machine body, use its hanging (ring) bolts and handle the body very carefully without giving it impact. Never lift up the body by hanging it at one point. This work should be undertaken only by qualified persons.
- As its standard installation, the machine should be fixed on a concrete floor with anchor bolts. Use liner to regulate any gap between the machine and the floor.
- Keep an adequate space above the outlets on the machine's roof because if they were blocked, the machine would fail to display its design suction power. Do not put any object on the outlets.

## Electrical wiring



- Only qualified persons should work on the electrical wiring of the mist collector pursuant to the Electrical Equipment Technical Standards and the Internal Wiring Regulations.
- Make sure of the machine's power supply as per its nameplate and use what is specified therein. Operating the machine on a different power supply could be very dangerous causing an operation failure.
- The breaker of the power supply should be compatible with the start-up current value.
- The breaker should be an earth leakage breaker which suits machines handling water. Be sure to earth the machine.

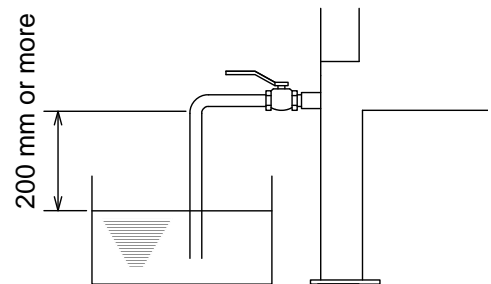
## Duct connection

- The duct must be made of a material that does not affect the sucked mist.
- The duct joints should be tightly sealed so no air may be sucked or leaked through them.
- The duct must not have a sag where the drain is liable to accumulate.
- In case a flexible duct is used, it should not be bent too sharp or unnecessarily sagged so it may keep a high suction power.
- The air inlet port is on the right flank of the collector, viewed from its front door, in the ex-factory configuration. It can be changed to the left flank and the port and the inlet cover may thus be interchangeable.
- No duct should be installed on the outlet side.

For detailed information about the choosing of foods and ducts, please call our nearby branch/sales office.

## Drainpipe connection

- To connect a drainpipe, be sure to liquid-seal the other end of the pipe.
- The sealing liquid surface should have a difference in level of 200 mm or more to the drain valve to prevent the backflow of drainage.
- If no drainpipe is installed, stop operating the machine at regular intervals to discharge drainage. The machine accommodates approximately 20 litres of drainage at a time.



## Trial operation

- Before a trial run of the mist collector, make sure:
  - that installation is free from backlash or other anomalies.
  - that the power supply cable, earth cable, insulation and voltage have been arranged as specified;
  - that there is no air leak at duct joints or no remaining material, bolt, nut or tool left behind in the duct, and
  - that the maintenance door is securely closed.
- With the above points confirmed, turn on the power switch and turn it off quick and observe the rotation direction of the motor cooling fan. Remove one of the tertiary filters and you will see the motor cooling fan. If it turns clockwise, it is alright. If it turns counter-clockwise, then turn off the power supply and change the connections of 2 cables of the 3 power supply cables.
- Check up the machine to see if it gives no vibration or unusual noise during operation.



## Chapter 4 Operation

### Routine operation

Operation procedures:

- [1] Make sure that the maintenance door is closed.
- [2] If no drainpipe is connected, close the drain valve.
- [3] Turn on the power switch to start operation.

End operation procedures:

- [1] Turn off the power switch.
- [2] If no drainpipe is connected, wait about 2 minutes and then discharge the accumulated drainage by opening the drain valve.



### Caution

- Do not allow too much drainage to accumulate in the machine body.
- The filters may not be damaged in normal use. If they are, stop operating the machine and replace them with new ones.

## Chapter 5 Maintenance



Be sure to maintain Mistresa so as to prevent a failure or accident of the machine and let it serve you for long. The power supply should be turned off before inspecting the inside of the machine. During inspection, wear protective goggles and gloves.

### What and when to inspect

What	When	Description
Front door	Before operation	Must be securely closed.
Drainage	↑	See the inside for any accumulated drainage.
Motor load current	Once a day	Read and record the ammeter on the control panel.
Exhaust air	↑	Check up the air outlet for mist leaks.
Blower vibrations	Once a week	No vibrations or noise
Filters	Once a month	No stain, blinding, dislocation or damage
Piping	↑	No bolt coming off or loosened or no worn-off packing
Drainpipe	↑	No clogging
Electrical wirings	↑	No poor insulation or loosened terminal

### Replacing the filters

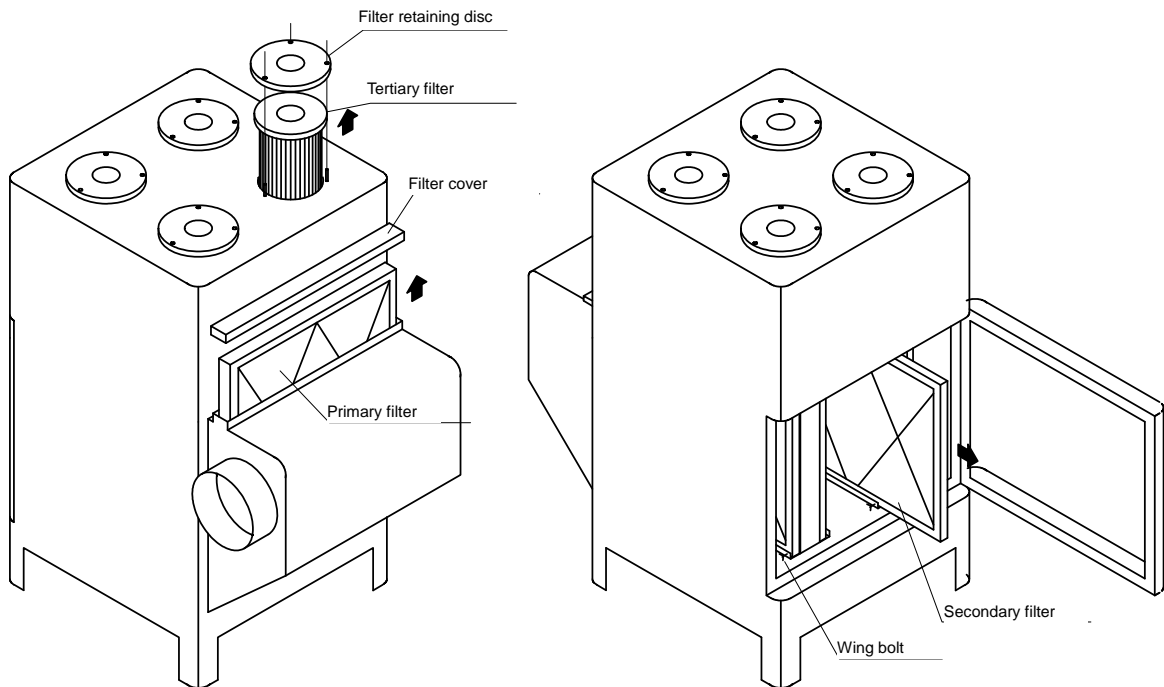
Filter type	Quantity	Element	Quantity	Cleaning	Inspection/ replacement interval	Size
Primary filter	1	Polyester 14 t	1	Yes	1 to 6 months	600 × 450
		Demister (= defroster)	1	Yes		
Secondary filter	4	Polyester 20 t	1	Yes	3 to 12 months	600 × 450
		Charged polypropylene	4	No		
Tertiary filter	4	Polyester		No	2 to 12 months	φ230 × 345



- Primary filter ..... If the filter's blinding by smears gets serious, clean the elements. If it is useless or the elements are damaged, replace them with new ones.
- Secondary filters ..... Clean or replace the polyester element in the same manner as for the primary filter. Since the charged polypropylene elements cannot be cleaned, replace them with new ones.
- Tertiary filters ..... Adsorbed mist causes the airflow rate to drop. If the suction power cannot be restored even if the primary and secondary filters are cleaned or replaced, replace the tertiary filters.

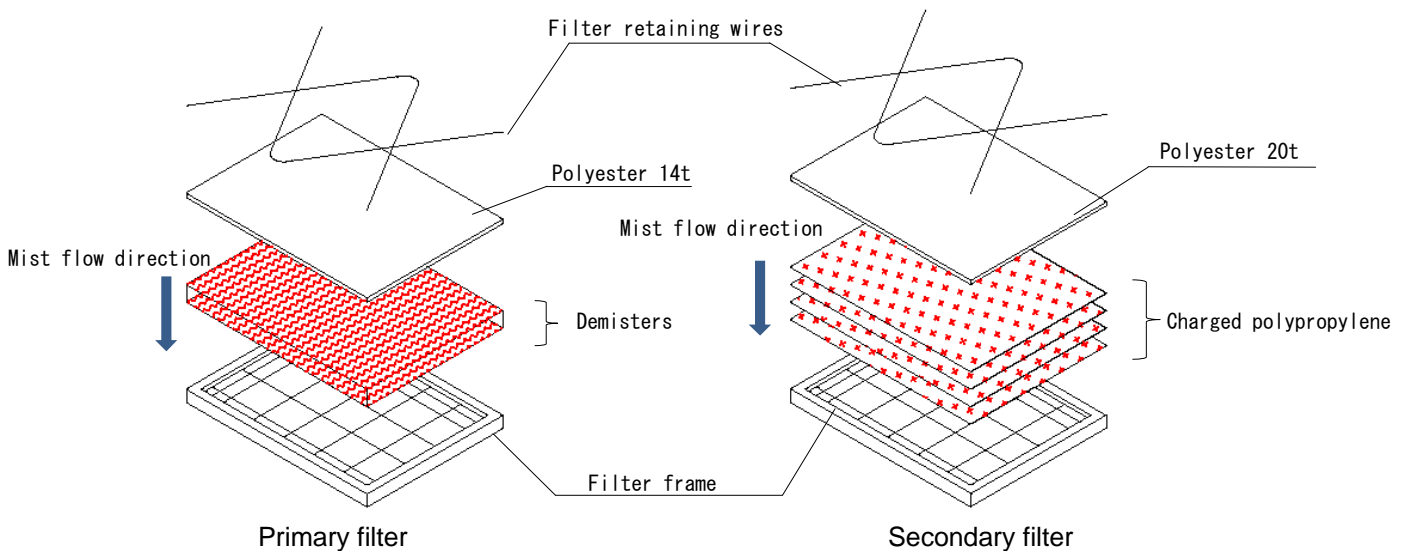
**How to detach the filters**

- Primary filter ..... Remove the cover of the suction box on the machine's back side, and draw out the inside filter frame.
- Secondary filters ..... Open the front door, loosen the wing bolt fixing each filter and pull out the filter frame to this side.
- Tertiary filters ..... Remove the 3 wing nuts that retain each filter on the machine roof and remove the filter retaining disc. Pull out the filter by lifting it up.



**How to detach the filter element**

Detach the element by pulling out the 2 filter retaining wires.





## Caution



- The filter retainers and the demisters are made of metal wire rods. During maintenance, be sure to wear protective gloves to prevent injury by the pointed tips.
- The primary and secondary filters direct the mist flow in specified directions. When mounting the filter frames on the machine, the wire lattice side should face downstream.
- Install the secondary filter with the side having 4 holes, bored in the filter frame's lengthwise direction, facing down.

### Troubleshooting

Symptom	Possible causes	Remedies
Blower motor fails to start.	<ul style="list-style-type: none"> <li>• Power absent</li> <li>• Thermostat activated</li> <li>• Motor failure</li> </ul>	<ul style="list-style-type: none"> <li>• Turn on the power supply.</li> <li>• Turn off the switch , determine the cause(s), remove it (them) and restart.</li> <li>• Inspect and repair the motor (Consult the manufacturer).</li> </ul>
Blower noise, unusual vibrations	<ul style="list-style-type: none"> <li>• Motor bearings broken</li> <li>• Foreign matter mixed</li> <li>• Impeller out of balance</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the bearings.</li> <li>• Remove the foreign matter.</li> <li>• Clean the impeller.</li> <li>• Correct the imbalance (Consult the manufacturer).</li> </ul>
Mist leakage	<ul style="list-style-type: none"> <li>• Broken filter cloth</li> <li>• Filter cloth mounting error</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the filter cloth.</li> <li>• Remount the filter cloth.</li> </ul>
Poor suction power	<ul style="list-style-type: none"> <li>• Damper closed</li> <li>• Filter blinding</li> </ul>	<ul style="list-style-type: none"> <li>• Open the damper.</li> <li>• Clean or renew the filter(s).</li> </ul>

### Specifications

Rated airflow	(m <sup>3</sup> /min)	30	
Rated static pressure	(kPa)	1.8	
Motor	(kW)	2.2	Totally enclosed fan-cooled outdoor motor
Number of poles	(P)	2	
Power supply		3-phase	
Frequency	(Hz)	50/60	
Mass	(kg)	180	
Noise level	(dB(A))	69	Front 1 m
Coating colors		(White) N-8.5	(body)
		(Blue) 2.5PB3.5/10	(suction box)
Drainage tank capacity	(L)	20	

Note: The noise level may change depending on the environment and condition in which the machine is used.

### **Scope of warranty**

Repair service is provided free of charge for a failure during the warranty period, as long as the blower has been used in compliance with these Operating Instructions, labels attached to the body, and other instructions.

In the case that this product is incorporated into other equipment used by the customer, the warranty does not cover costs for removal from such equipment, reattachment to such equipment, costs of other incidental work, costs of transportation etc., resulting opportunity loss incurred by the customer, lost operation, or any other indirect loss or damage suffered by the customer.

- For requests for repair service, please contact our nearest branch or sales office.

### **Warranty period**

One (1) year from the date of delivery of the product.

### **Even during the warranty period, only charged service is provided in principle, if any of the following applies:**

- Failure or damage due to incorrect use that is not compliant with these Operating Instructions, labels attached to the body, or other instructions, and/or unauthorized repair or modification
- Failure or damage due to transportation, dropping, etc. after the purchase
- Failure or damage due to fire, earthquake, storm, flood, lightening or other natural disasters, environmental factors such as salt damage and public pollution, abnormal voltage, use of a power supply (voltage or frequency) other than that specified, or the like
- Failure or damage due to repair or modification (including punching, etc. in the product) not conducted by our company
- Failure or damage due to the use of parts other than those designated by our company
- Trouble when I absorbed the dust except the meeting and the damage
- The trouble that damage of the filter cloth and the packing that happened by having absorbed a sharp material depends on and the damage
- Discoloration, scratching, natural consumption of consumable parts or other defects due to use or deterioration over time
- Failure or damage caused by neglecting the maintenance and inspection described in the Operating Instructions
- Expendable supplies including the filter cloth and packing

### **We will not compensate for any loss or damage resulting from defects that occur during the use of this product.**

#### [Notices]

- (1) The descriptions in these Operating Instructions are subject to change without prior notification in the future.
- (2) We have made all possible efforts to prepare these Operating Instructions. However, if you have any questions about them or find any inquiries, errors, omissions, etc., please contact our nearest branch or sales office.
- (3) If the power supply frequency changes due to a change in the location where the blower is used, it may not be used as it is. We will consider a measure in each case where it is required. In such a case, please contact our nearest branch or sales office.
- (4) At the time of inquiry, please describe the product type and the manufacturing number indicated on the product nameplate.

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**Notes** : We are not responsible for any accident or breakdown caused by different/wrong use from this manual, and improper repair or remodeling.



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