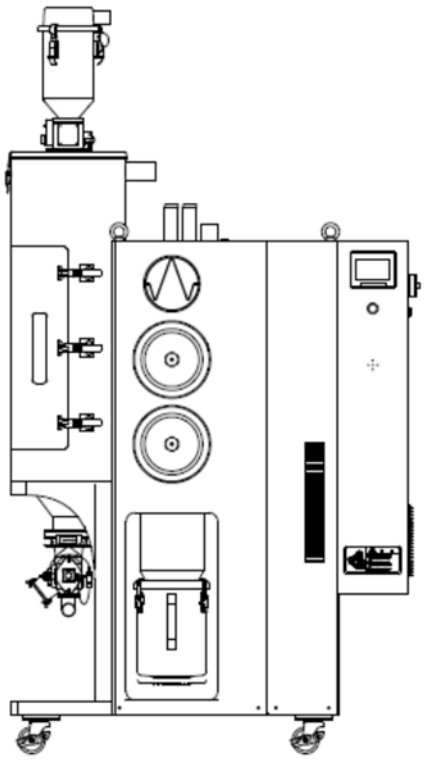
MULTI JET 5-i

MJ5-i-150~1500

Instruction Manual

⚠ WARNING

You must properly use your MULTI JET 5-i by thoroughly reading this manual.
Keep this manual near the MULTI JET 5-i so that it can be easily accessed whenever necessary.



MATSUI®

Issued in Jul 2020

Product Warranty

Thank you very much for purchasing our product. Please carefully read this instruction manual for correct and safe use. In addition, this page of this instruction manual serves as the product warranty. Make sure to carefully store the instruction manual after reading it.

1. Warranty period

   Warranty of this product warrants repair or replacement of parts free of charge if any failure occurs even when this product is normally used according to the operation procedures, etc., within the warranty period of the product warranty.

   In addition, failure products shall be returned to us.

   1) The warranty term of the product is 12 months after the initial operation, but shall not exceed 15 months after the date of shipment of the product.
   2) The warranty period for parts replaced during repairs shall be three months from the date of repairs.

2. Scope of Warranty

   The following items, if applicable, are not covered by the free warranty even within the warranty period.

   1) Failure or damage caused by modifications or repairs carried out by any person other than us
   2) Failure or damage caused by natural disasters such as earthquake, typhoon, flooding, etc., and accident or fire
   3) Failure or damage caused by use exceeding the limit of the specifications described in this instruction manual, catalog, etc., or by installation environment
   4) Failure or damage caused by improper use or handling
   5) Effect on products caused by external factors
      (Paint peeling due to generated gas, malfunction due to electrical noise, etc.)
   6) Failure or damage caused by use of parts other than genuine parts (oil, medium, filter, etc.)
   7) Consumables (hoses, filters, packings, O-rings, electric magnet contactors, mechanical seals, etc.)
   8) When the product is transferred or leased to third party

   - The scope of warranty includes up to repair or replacement of parts of our products, and does not include products manufactured by use of our products and damage to other products due to failure or use of our products. In addition, “transportation expenses,” “customs duties,” “travel expenses” and “commuting expenses” associated with the repair or replacement of parts shall be separately paid.
   - The product price does not include the following service expenses. They are separately charged. (However, this does not apply if the contract includes the following)
     1) Technical guidance and technical education
     2) Installation adjustment guidance and trial operation attendance
     3) Maintenance and inspection, adjustment and repair

3. After expiration of the warranty period

   If performance can be maintained by repairs, we shall repair the equipment for a fee at your request.

4. Parts supply period

   Functional parts for repairs can be supplied until about eight years after the end of production of the equipment. However, some parts can be supplied even after the lapse of the period. Please contact our service division for information.

5. Others

   For technical information, refer also to the maintenance and inspection procedures, and troubleshooting on our website (http://matsui-mfg.co.jp/troubleshooting/).

Contents

⚠ Items with this sign are particularly important. Please be sure of a sufficient comprehension before applying relevant devices.

Chapter 1 Safety Precautions

This chapter describes the hazardous levels and their marks on the products, which calls for your particular precaution in performing the operations, maintenance, and service for the safe use of the products.

> **Warning**
>
> In performing the operations, maintenance, and services of the products, be sure to observe the safety precaution include in this document.
> We shall take no responsibility and /or liability for any injury or accident attributable to your failure in observing such precaution.

1. Hazardous level marks and their meanings

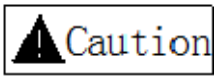
This manual uses the following convention for the hazardous level marks:

Mark	Description
Danger	Improper handling might lead to your death. This mark is followed by the information provided to avoid such result.
Warning	Improper handling might lead to your serious injury. This mark is followed by the information provided to avoid such result.
Caution	Improper handling might lead to your slight injury or damage on the products. This mark is followed by the information provided to avoid such result.
Note	This mark is followed by the information provided to call for your particular attention in the context of operation procedures and explanatory statements.
⚠	This mark is used to indicate a point to which you should pay particular attention in handling something.
*	This mark is used to indicate an exceptional condition or description in figures and tables.

2. Safety Precautions

Be sure to observe the following precautions when operating this equipment:

Precaution Item	Description
Surface temperature 	Since this equipment is made for drying purpose, the surface of the body reaches high temperatures. In particular, the surface of the hot air piping and the exhaust filter case reach temperatures exceeding 130°C/266°F when the dryer runs continuously with the control temperature set to its maximum (160°C/320°F). Avoid careless proximity with the body when the equipment is in operation. Even when the equipment must be handled at emergency, do not touch with bare hands or allow direct contact with skin. Before performing normal inspection and cleaning, allow the machine to cool down naturally for at least five hours after stopping operation.
Equipment use	This equipment is designed for drying resin pellets. Drying of any other material will cause machine breakdown or failure. Trou by th ble resulting from use with materials other than resin pellets is not covered e warrantee.
	Drying e, special type matecan only be carried on with resin pellets, material with high moisturrial and heavy moist Nylon material are not applicable.
	Resin material generating volatile gas, while drying, is easy to have dehumidifying rotor (absorbing material) stuck, consequently, the dehumidifying and drying ability will become worse.
	Do not use materials containing volatile component and inflammable materials; otherwise, explosion or fire will trigger. Matsui will absolutely not take any responsibilities of such accident thus aroused.
	As for the material that is possible to generate gas during drying, please refer to “Technical Manual-1”.
Using Environment	Use this equipment indoor. Operate this equipment in ambient temperature from 0°C to 40°C and humidity from 25%~85%. Depending on the humidity condition, there is possibility that performance may not be fully realized. As for the relation between the humidity and the dry air dew point, please refer to “Technical Manual-2”.
Drying temperature	Please set drying temperature within maximum operating range as noted in the specifications. Do not use temperatures exceeding the maximum operating temperature. Otherwise, failure or an accident will occur.
Precautions during operation	Do not open the machine parts, such as cylindrical part of drying hopper, cleaning door and residue out hole, while machine is operating. Because resin or hot air will blow out. And it is extremely dangerous.
Opening and closing of cleaning door	Please open and close cleaning door after confirming that there is no material inside from the level window.
Maintenance and inspection	Before carrying out any maintenance procedures, be sure to turn the main switch on the side of the control panel to “OFF”.

Precaution item	Description
Control panel Temperature controller	Do not apply strong shock to or spill water on control panel or temperature controller. Otherwise, failure or fire may result.
	Only open the door when absolutely necessary. Otherwise, failure or accident may result.
Overheat protection device 	This equipment has safety device (overheat protector) as its standard configuration. When the safety device is operating, the operation power is cut off, and the heater and blower stop. At this moment, the heater part would become quite high in temperature. Only after complete cooling down of the heater, should restart be carried on. Please pay full attention to temperature set up in order to avoid overheat sensor triggers again. For details, please refer to “Chapter 4. Preparation for Operation”.
Warning labels Name plate	Keep them legible before this equipment is disposed of.
Wiping clean	Do not wipe this equipment with petroleum solvents. Benzene, paint thinner, scouring powders, etc. will damage the surface. To clean dirty equipment, wipe with soft cloth which has been soaked in water below 40°C/104°F and wrung out well.
Maintenance and repair	To avoid any danger or failure, please do not entrust anyone who don’t understand machinery and electricity with this task involving dismantlement. For services regarding maintenance or repair, please contact our after-sales service department that is nearest to your company.
When disposing of product and parts	When disposing of them, obeys law in the applicable use country after use in product and parts.

Chapter 2 . Equipment Explanation

1. Essentials of the equipment

This equipment is used for drying resin particles.

This device can make dry air with sorbent to remove water in air.

Then send the dry air into hopper where resin is after the air being heated up.

As water in external air has been removed with sorbent, stable conditions for dryness can be obtained.

In addition, because of low dew point and little water in the air, the water can be evaporated very quickly.

As the device recycles the exhaust from drying hopper to get dry air, and the exhaust is not discharged out of the device; thus, there will be no strong odour and plenty hot air emitted, besides, power consumption is very low.

This machine has the intelligent drying ability to decrease or increase wind volume to optimum; consequently, realizing the optimal use of electric energy. (iplas)

iplas **Refers to:**

General names for commodities that have been developed by Matsui featuring automatic control and intelligent capacity

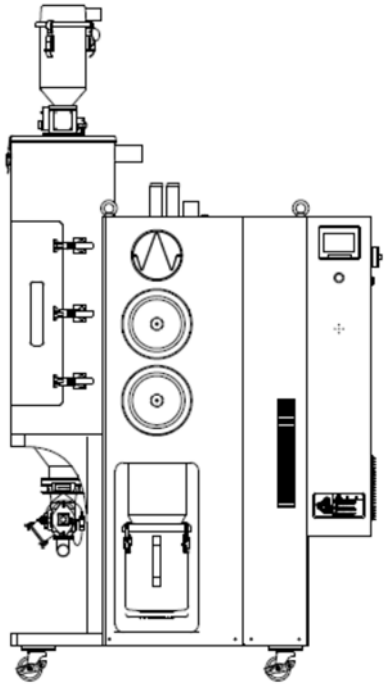
As to those equipped with iplas, customers' operation is monitored and controlled in a consecutive row, and automatically adjusted to a mode optimizing energy and resource saving.

It shall carry on control according to different operating status, such as in full load production, a small amount production, or production under temporarily stop. Compared with the former one, it saves both energy and resource to the larger extent.

2. Packing confirmation

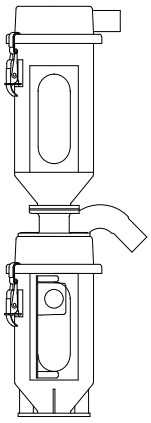
Make sure if the whole machine you purchased from us is in complete set or not.

○ Main machine (purchase status)



○ Hopper on the molding machine (purchase status)
（AERO Power Hopper）

For secondary convey 2 directions: 2pcs
Model differs according to the specification

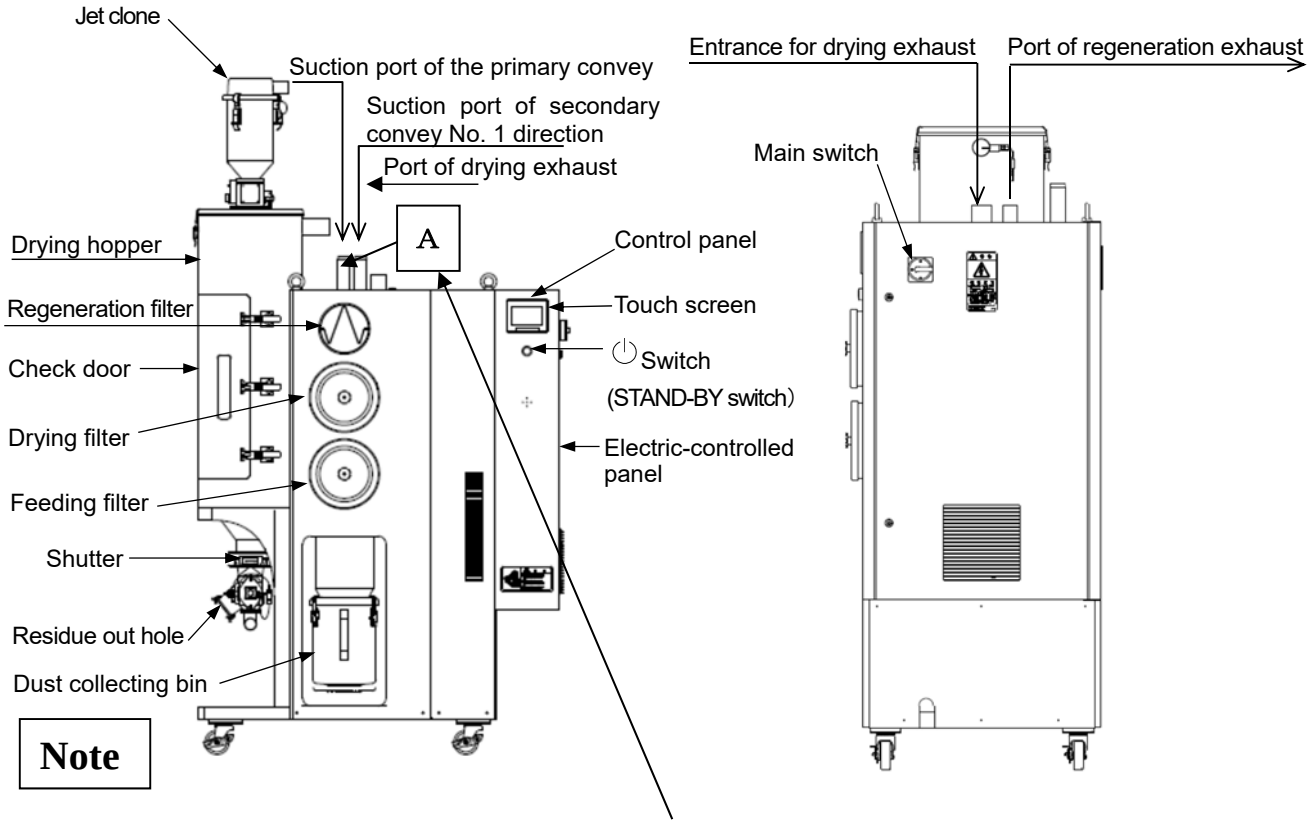


○Appendix

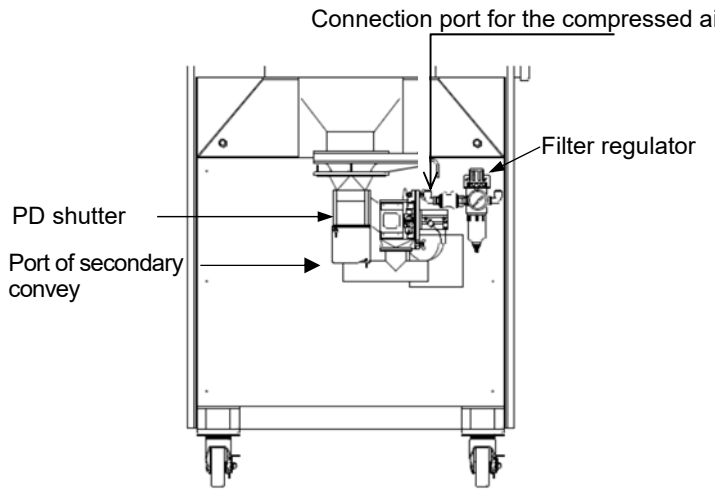
Attachment	MJ5-i-150~650	QTY.	MJ5-i-1500	QTY.
Hopper on the molding machine (Aero Power Hopper)	APH-3	1	APH-9	1
PVC hose(for primary convey)	φ38×10m	1	φ50×10m	1
PVC hose(for secondary convey)	φ38×5m	1	φ50×10m	1
Suction nozzle(aluminum)	φ38	1	φ50	1
Hose band (For PVC hose)	AK-1045	4	AK-1058	4
GL hose(white, for suction)	φ38×5m	1	φ65×10m	1
Pipe joint(white rubber)	φ38	2	φ60	2
Hose band (For GL hose)	AK-1045	2	AK-1073	2

* Appendix differs by attached option and special specification.

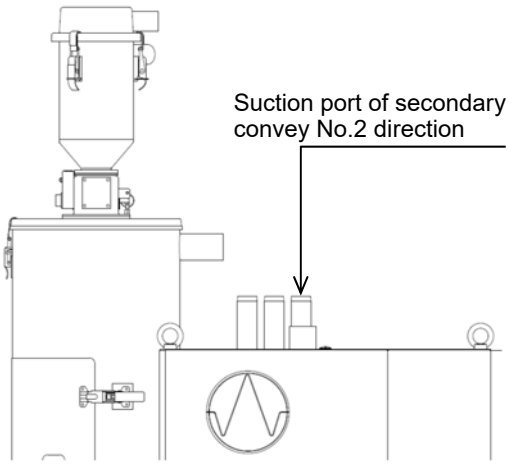
3. Name of each part (illustrated by below picture)



※Before operation, it's necessary to refer to the item No.4 to confirm the correct rotating direction of blower, which is in Chapter 4 Preparation for operation (P41).
Please check whether the inhaling port A of the primary conveyance in the above picture is breathing in.

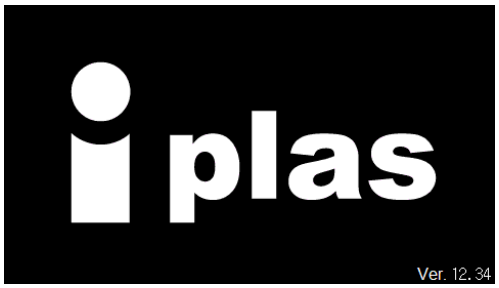
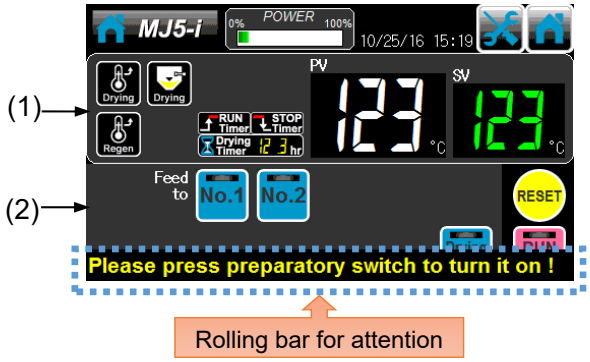


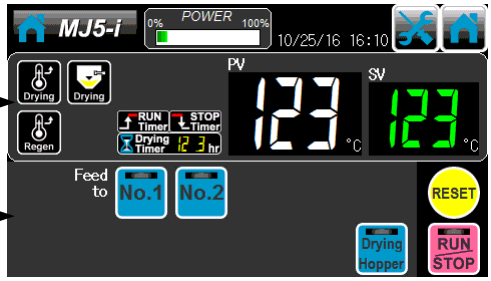
Underneath of drying hopper

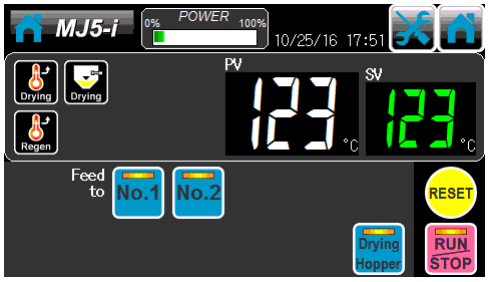
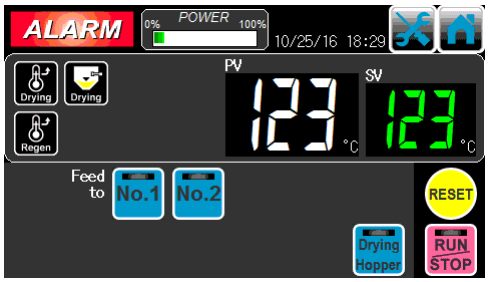


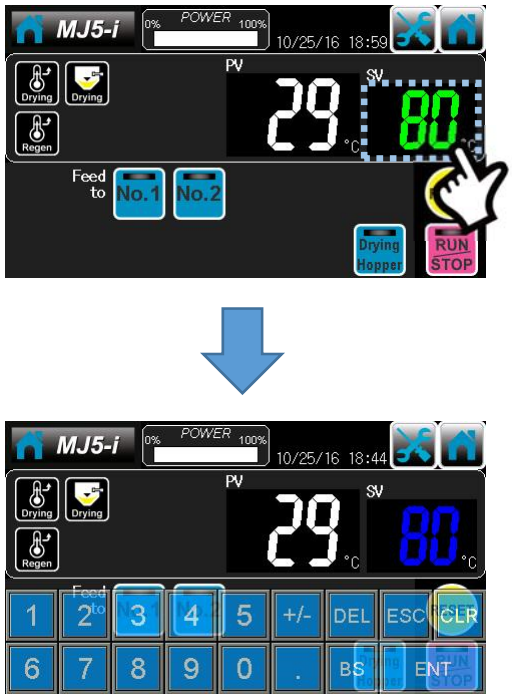
Secondary convey No.2 direction (Optional)

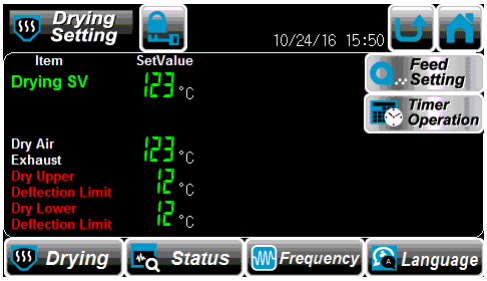
4. Name and function of each controller part of touch screen

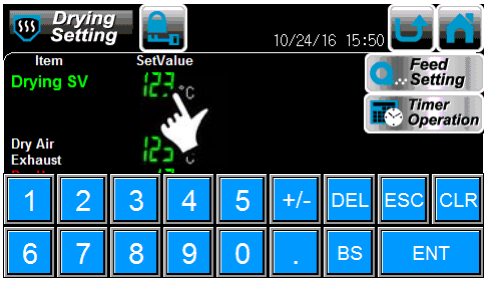
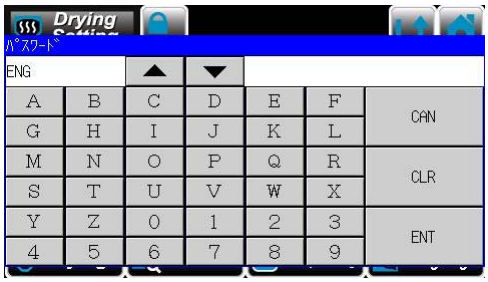
Display	Operating method / Function and operation description
Initial display 	It will show soon after machined connected to power supply. In a few seconds, it goes to 「Home」.
Home 	Press [ ] in various display to go to main menu. Windows switching operation ・Press MJ5-i to go to「AlarmList」window. ・Press to go to「DryingSetting」window. (1) Indicating part Drying ・・・・・・・・・・・・・・・Lights on in drying heater Regen ・・・・・・・・・・・・・Lights on in regeneration heater Drying ・・・・・・・・・Lights on in drying hopper material level PV ・・・・・・・・・・・・・for present temperature indication SV ・・・・・・・・・・・・・for setting temperature indication RUN Timer・・・・for timer setup for the start up・flickers STOP Timer・・・・・・・for timer setup for the stop・flickers Drying Timer 3.0 hr・・ for timer set up for drying completion・Flickers Time display・・to show remaining time after drying finished (Secondary side convey start to put off). ※The above, due to not been set up, will not show for the first time, when machine is shipping out of factory. ※Each timer setup can be done through 「Timer Operation」window.

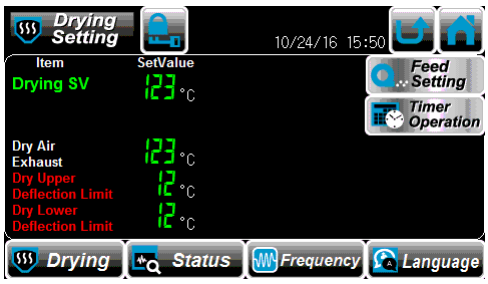
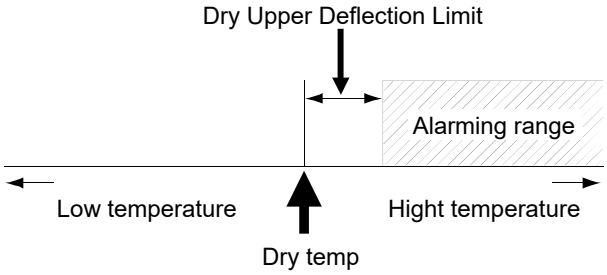
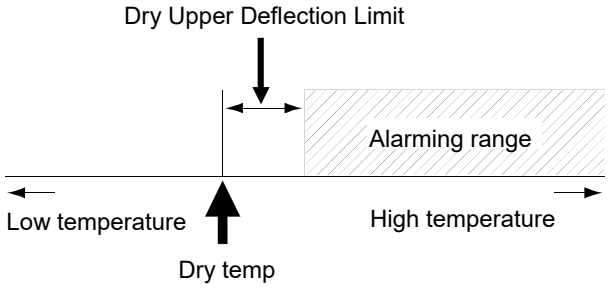
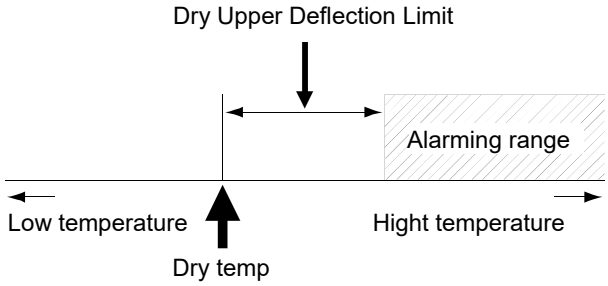
Display	Operating method / Function and operation description
Home (1) (2)  	(2) Operation part Feed to No.1 ·····Secondary convey No.1 direction start/stop switch, indication Feed to No.2 ·····Secondary convey No.2 direction start/stop switch, indication Feed to Drying Hopper ·····Primary convey to drying hopper start/stop key, indication RUN STOP ·····drying run/stop key, indication RESET ·····key for alarm and buzzer reset

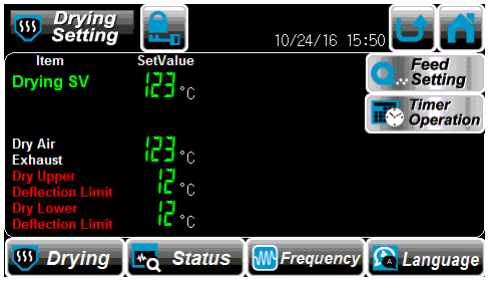
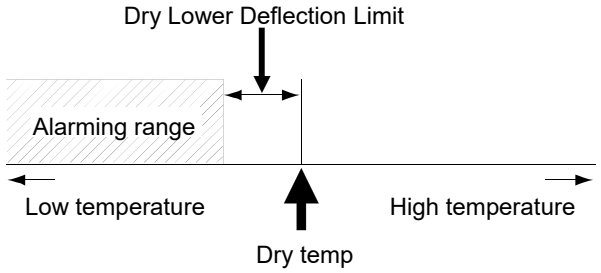
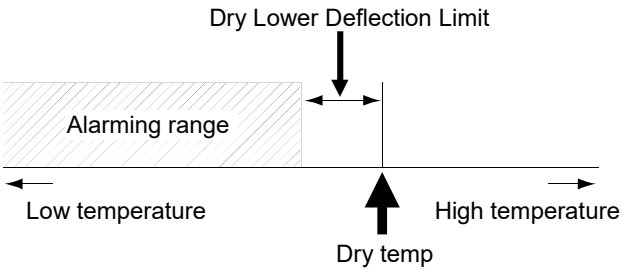
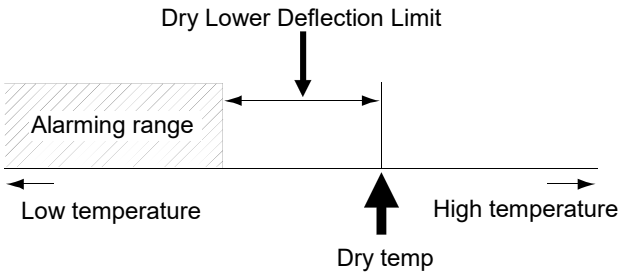
Display	Operating method / Function and operation description
Home 	<u>Start-up operation</u> ・Hold press [RUN/STOP] to turn on indicator until drying operation started. Repeat hold press until indicator flickers to stop drying operation cycle. ・Press [Drying Hopper] to turn on the indicator to start primary convey. Repeat press to stop the conveying cycle (This operation will stop the conveyance standby mode at once.) ・Press [No.1] to turn on the indicator and start secondary convey No.1 direction operation. Repeat press to stop the convey cycle (This operation will stop the conveyance standby mode at once).
Home 	<u>Operation under emergency</u> ・ALARM which flickers to alarm abnormity. Press this key to show「AlarmList」for abnormity confirmation. ・Press ALARM to stop buzzer. ・Press [RESET] to clear all alarms, but it will not be cleared until the cause be identified and problem repaired.

Display	Operating method / Function and operation description
Home  	Touch set-up value of drying temperature to reach numeric key. ↓ Set up the value by input number [0]～[9]. ※ Press [BS] to delete one character; press [CLR] to cancel. ※ Press [ESC] to remove numeric key board and exit from the numeric input mode. ↓ Please press [ENT] to input the number. NOTE Value allowed to set up in the home screen refers to drying SV value in Drying Setting 「DryingSetting」 menu, besides, only when SV2 is valid can it be changed.

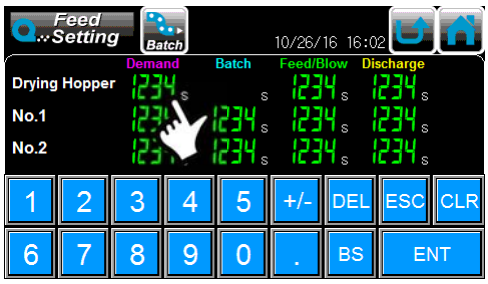
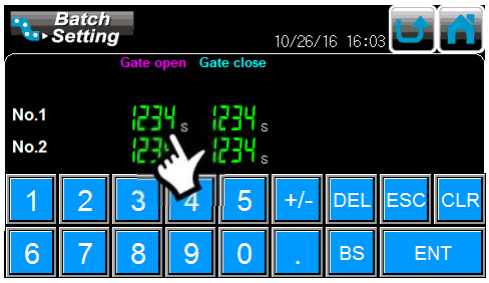
Display	Operating method / Function and operation description
Temp setting  	Press on home or Drying in various windows to go to「DryingSetting」window. <u>Windows switching operation:</u> ・Press[ ] to go to「Home」window. ・Press[ ] to go to last window. ・Press Drying Setting to go to「AlarmList」window. ・Press Feed Setting to go to「FeedSetting」window. ・Press Timer Operation to go to「TimerOperation」window. ・Press Status to go to「DryingStatus」 ・Press Frequency to go to「Frequency」 ・Press Language to go to「Language」window. <u>Set up items:</u> ・Drying SV：to set up drying temperature for applicable material. ・Dry Air Exhaust： to set up monitoring drying hot air temperature at exhaust port of drying hopper. ・Dry Upper Deflection Limit： to set up deviation value of alarm for upper limits temperature. ・Dry Lower Deflection Limit : to set up deviation value of alarm for lower limits temperature. ※you can set up drying temperature SV in「Home」window.

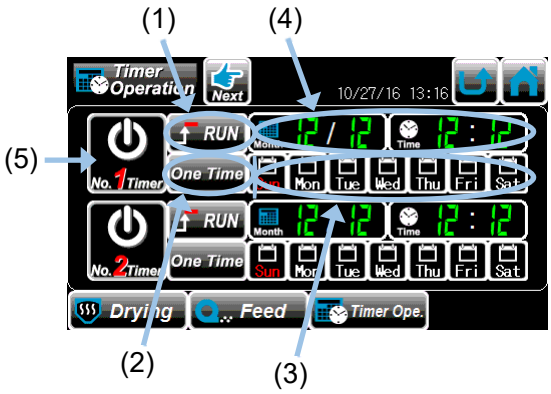
Display	Operating method / Function and operation description
Temp setting 	<u>Set up operation:</u> If press value set up part, 「numeric keyboard」 will show in the left window. Press [0]～[9] to input a numeric value, and then press [ENT]. ※Press [CLR] to delete the value input. ※ set up of drying exhaust temperature must be certified by ENG setting up security level. Please operate to change security level.
Temp setting  **[ENG setting] Password：D000**	<u>Security level change operation</u> Press  in DryingSetting window to go to dialogue box for code input of security level change. Input code through the alphabet and number shown in the left photo. If press[ENT] and the code accepted, then switching key「ENG Setting」appear. During inputing, press [CLR] to delete all character at once by one time.

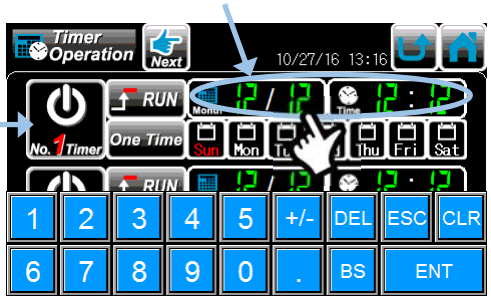
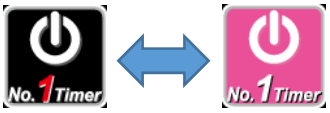
Display	Operating method / Function and operation description
Temp setting  	<u>Setting up essentials of Dry Upper Deflection Limit</u> Eg. Set drying temperature upper limit above“10°C/18°F“ as its alarming range, then drying upper limit deviation is “10°C/18°F”.  <u>Take above into consideration and change drying temperature set value, then the upper limit alarming range shall adapt accordingly as it is shown below.</u>  <u>Take above into consideration and change set value of dry upper deflection limit, then the upper limit alarming range will adapt accordingly as it is shown below.</u> 

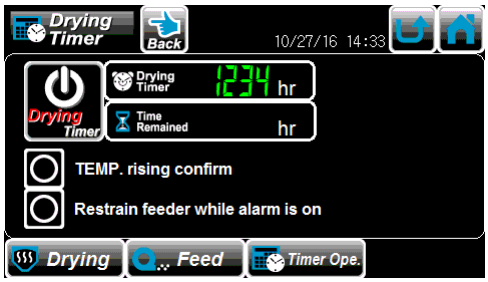
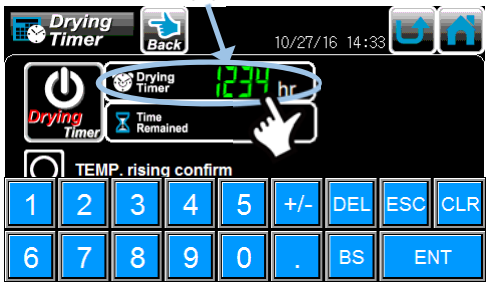
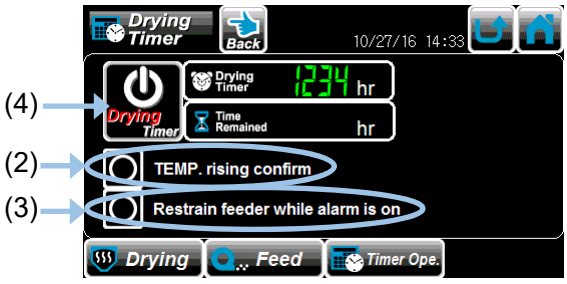
Display	Operating method / Function and operation description
Temp setting  	Setting up essentials of Dry Lower Deflection Limit Eg. Set drying temperature Lower limit below “10°C/18°F” as its alarming range, then drying lower limit deviation is “10°C/18°F”.  Take above into consideration and change set value of drying temperature, then the lower limit alarming range will adapt accordingly as it is shown below.  Take above into consideration and change set value of dry lower deflection limit, then the lower limit alarming range will adapt accordingly as it is shown below. 

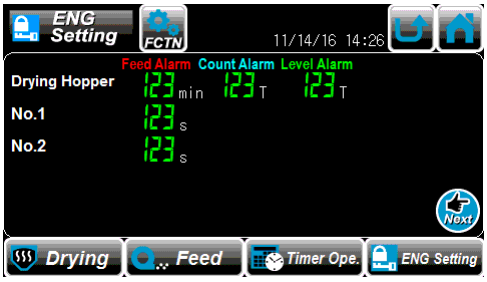
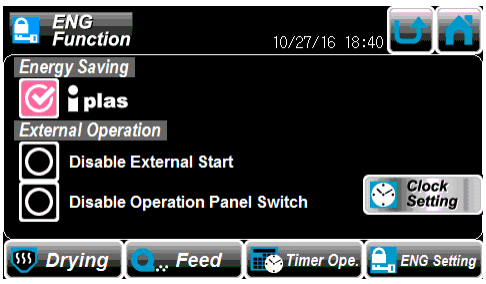
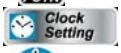
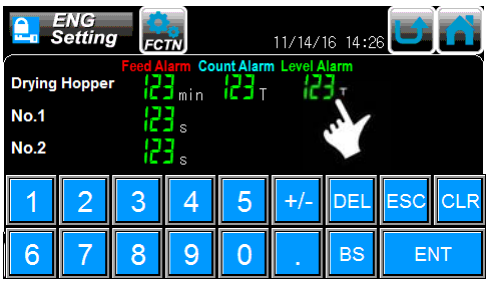
Display	Operating method / Function and operation description
Feed setting   	Press Feed Setting Feed in DryingSetting window or various windows to go to「FeedSetting」window. Windows switching operation: ・Press[ ] to go to「Home」window. ・Press[ ] to go to last window. ・Press Feed Setting Batch Setting to go to「AlarmList」window. ・Press Drying to go to「DryingSetting」window. ・Press Timer Ope. to go to「TimerOperation」window. ・Press [Batch] to go to「BatchSetting」window. ※Due to different specification, there will be unshown key・item.

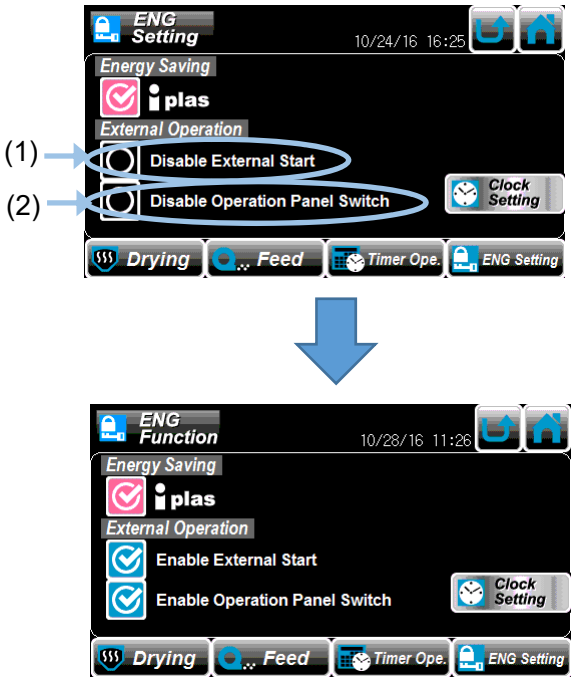
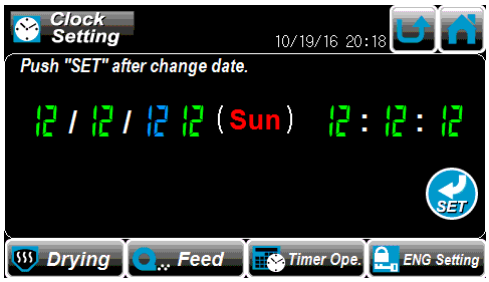
Display	Operating method / Function and operation description
Feed setting   	Set up items: ・Demand： Feed level confirm time starting from when feed in the drying hopper reaches to the required level to when conveyance starts. ・Batch： Time needed for the material cut off from the discharge valve of the lower part of the drying hopper in the 1 primary convey. (discharge valve open time). To set up timer for the quoted amount in the No.1 little hopper to be completed discharged from the convey side. ・Feed/Blow： drying hopper to set up timer for material conveyed to little hopper on the dryer. secondary convey No.1 direction timer for air blowing inside of convey piping starts from when cut off timer due (discharge valve close) to when conveyance stops. to set up timer for cut off material completely conveyed to No.1 little hopper side. ・Discharge： Material discharge timer of each little hopper starting from when conveyance stops to when the next conveyance starts. ・Gate Open and Gate Close： To set up valve open and close repeat time in cut off movement respectively. Set up operation Press value set up part to go to「Numeric keyboar」window on the left part. Press [0]～[9] [.] to input a numeric value and then press [ENT]. ※Press [CLR] to delete the numeric value input.

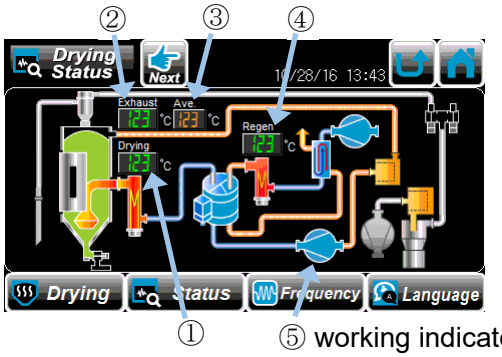
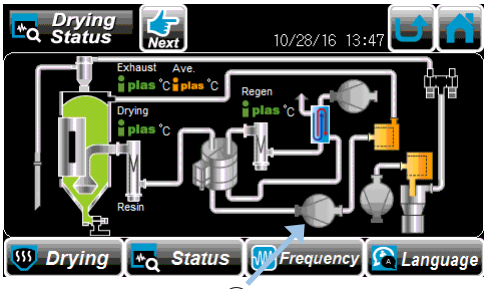
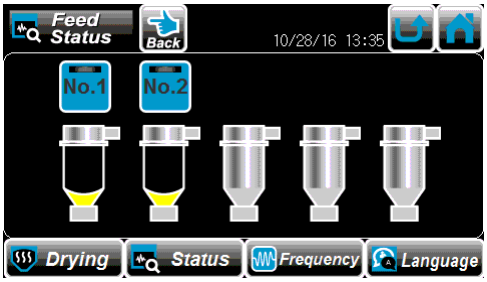
Display	Operating method / Function and operation description
Run/Stop timer 	Press Timer Operation Timer Ope. in DryingSetting or various windows to go to「TimerOperation」window. Windows switching operation ・Press [ ] to go to「Home」window. ・Press [ ] to go to last window. ・Press Timer Operation to go to「AlarmList」window. ・Press Drying to go to「DryingSetting」window. ・Press Feed to go to「FeedSetting」window. ・Press[Next] to go to the next page.
Run/Stop timer 	No.1 run/stop timer set up operation is same with that of No.2. 1) mode of timer set up RUN shows, when it used for run timer set up. STOP shows, when it used for stop timer set up. Each press on RUN or STOP to alternate. 2) repeat function set up With timer set up, you can repeat use start/stop function, Daily or Weekly shows. For each press on Daily , Weekly or One Time to alternate. 3) to repeat week set up You can set up week, if the repeat function is to be set Weekly . Press a week needed to be repeat to reverse. Mon ⟷ Mon Press it again to reverse to where it was.

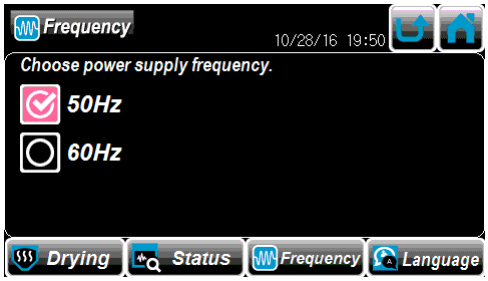
Display	Operating method / Function and operation description
Run/Stop timer (4) (5) 	4) date and time set up Press value set up part needed to be changed to show「numeric keyboard」on the left window. Press [0]～[9] to enter numeric value and press [ENT]. ※Press [CLR] to delete a numeric value. 5) Press timer set up being used to reverse, this timer is effected, press it again, reverse to where it was to dismiss this function. 

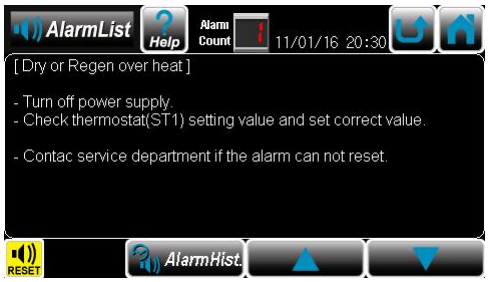
Display	Operating method / Function and operation description
Drying timer 	Press[Next] in run/stop timer set up window to go to 「DryingTimer」 window. <u>Windows switching operation</u> ・Press [Home] to go to 「Home」 window. ・Press [Back] to go to last window. ・Press Drying Timer to go to 「AlarmList」 window. ・Press Drying to go to 「DryingSetting」 window. ・Press Feed to go to 「FeedSetting」 window. ・Press [Back] to go to 「TimerOperation」 window.
Drying timer (1)  	<u>Set up operation for Drying timer</u> 1) Drying timer set up Press Drying timer value set up part to show the window 「numeric key」 window as on the left. press[0]～[9][.] to enter numeric value and press [ENT]. ※press [CLR] to delete numeric value input. 2) When temperature rising for drying andregenerative heating confirmed, and drying timer is activated, press [TEMP. rising confirm] to switch to TEMP. rising confirm . 3) When drying alarm occurred, secondary side convey stop. Press [Restrain feeder while alarm is on] to switch to Restain feeder while alarm is on . 4) Hold press [DryingTimer] to reverse it, then, set up timer is in effect. Again press it to reverse to where it was and dismiss this set up.  When [Drying timer ON] is shown, the timer will indicate remaining time.

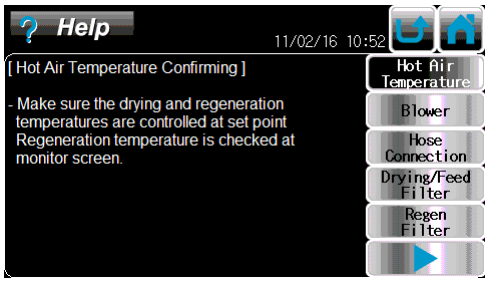
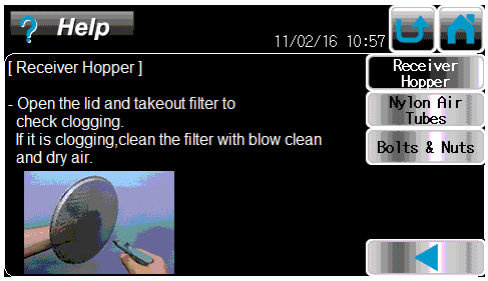
Display	Operating method / Function and operation description
ENG setting    	Press   in DryingSetting window or various windows to go to「ENG Setting」window. ※to go to ENG Setting window must be certified by ENG Setting grade. Please operate to change security level. <u>Windows switching operation</u> ・Press [] to go to「Home」window. ・Press [] to go to last window. ・Press  to go to「AlarmList」for confirmation. ・Press  to go to「DryingSetting」window. ・Press  to go to「FeedSetting」window. ・Press  to go to「TimerOperation」window. ・Press [] to go to「ENG Function」window. ・Press  to go to「ClockSetting」window. ・press [] to go to the next page. ・press [] to go the last page.
ENG setting  	<u>Set up content</u> Please refer to the ENG setting in「Chapter 4 controller of touch screen setting」 <u>Set up operation</u> Press value set up part to go to 「numeric value key」window. Press [0]～[9] to have numeric value input, and then press [ENT]. ※Press[CLR] to delete numeric value input.

Display	Operating method / Function and operation description
ENG setting 	<u>External start up setting:</u> 1) Press [Disable External Start] to turn on the light, and external start up is in effect. ※After the external start up is set up in effect, please set contact input of external start up ON. 2) To combine external start up input state, in case of setting ON/OFF in operation panel in effect,please press [Disable Operation Panel Switch] to turn on the indicator.
Clock setting 	<u>Time setting</u> 1) Press Clock Setting in [ENG Function] window to go to 「ClockSetting」 window. 2) If press value set up part to change date and time, then 「numeric value」 window shows, press [0]～[9] to have numeric value input, and press [ENT] key. ※Press [CLR] key to remove numeric value input. 3) for each press on value set up part, week changes, please select a appropriate week. 4) after finishing this setting, please hold press [SET]

Display	Operating method / Function and operation description
Drying Status  ⑤ working indicator When [plas] flickers  ⑤ stop working indicator Feeding Status  	Press Status in DryingSetting window or various windows to go to 「DryingStatus」 window. Window switching operation ・Press [ ] to go to「Home」window. ・Press [ ] to go to last window. ・Press Drying Status Feed Status to go to「AlarmList」window. ・Press Drying to go to「DryingSetting」window. ・Press Frequency to go to「Frequency」window. ・Press Language to go to「Language」window. ・Press [Next] to go to FeedingStatus window. ・Press [Back] to go to DryingStatus window. Windows display content ① present temperature of drying hot air. （hot air inlet of drying hopper） ② present temperature of drying hopper exhaust ③ present average temperature of drying hopper exhaust. ④ present status temperature of dehumidifying absorbents regenerative hot air ※ When [plas] is flickering,the present value is witched to [plas plas] . ⑤ the indicator turnes on the each machine lit up means it is working, and it is stop working if the indicator turned off. Feeding Status indicator of different function item of various convey side turned on / flickering represents the present working status.  Empty Batch Blow Full Error

Display	Operating method / Function and operation description
Frequency select 	Press Frequency in DryingSetting window or various windows to go to「Frequency」window. Windows switching operation ・Press [ ] to go to「Home」window. ・Press [ ] to go to last window. ・Press Frequency to go to「AlarmList」window. ・Press Drying to go to「DryingSetting」window. ・Press Status to go to「DryingStatus」window. ・Press Language to go to「Language」window. Set up content ・Please press power supply frequency to light up the indicator. ※Power supply frequency has already been set up since the machine shipped out of the factory.
Language 	Press Language in DryingSetting window or various windows to go to 「Language」window. Windows switching operation ・Press [ ] to go to「Home」window. ・Press [ ] to go to last window. ・Press Language to go to「AlarmList」window. ・Press Drying to go to「DryingSetting」window. ・Press Status to go to「DryingStatus」window. ・Press Frequency to go to「Frequency」window. Setting up content ・Select a proper language and set the indicator on.

Display	Operating method / Function and operation description
Alarm list  	Press windows names of various window to go to 「AlarmList」 window. In case of abnormity being occurred, ALARM flickers, press it to confirm present abnormity. Windows switching operation ・Press [ ] to go to 「Home」 window. ・Press [ ] to go to last window. ・Press [Help] to go to 「Help」 window. ・Press AlarmHist. to go to 「AlarmHist.」 window. Abnormity confirm ・to confirm abnormity being occurred by checking the number of abnormity. ・In case of multi-abnormities, please press [ ] [ ] to confirm other abnormities. ・Press [RESET] to eliminate abnormity item which is been fixed
Alarm history  	Press AlarmHist. in 「AlarmList」 window to go to 「AlarmHist.」 window. To confirm the windows that has abnormity occurred in the past. Windows switching operation ・Press [ ] to go to 「Home」 window. ・Press [ ] to go to 「AlarmList」 window. Abnormity history confirm ・Press [ ][ ] to confirm other abnormity history list when multi-abnormities occur.

Display	Operating method / Function and operation description
Help   	Press [Help] in「AlarmList」window to go to「Help」window, which is able to show various helps content. Windows switching operation ・Press [ ] to go to「Home」window. ・Press [ ] to go to last window. ・Press item label to go to its help ontent. ・Press[ ] [ ] to go between pages.

5. Machine unit usage regulation

The handling explanation of each unit equipment built in this device (Especially, about notes) is described.

Please observe notes described in this manual when you use this device and unit equipment.

[Model: Branch Damper](Item no.: PD3-φ38 (φ50))

1． Usage regulation

⚠Warning

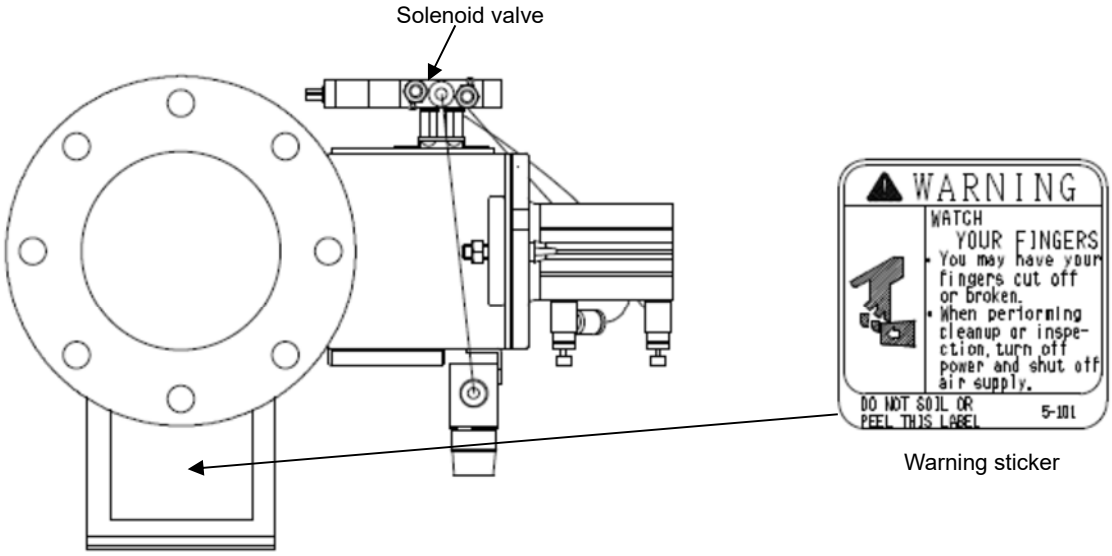
●Notice the finger	While connecting the power supply and supplying the compressed air, please do not stretch the finger or hands into the damper box. Take care to avoid lacerations to fingers or hands and danger of getting hurt.
●Maintenance and repair	Never ask unqualified personnel who do not have a sufficient knowledge of this equipment to maintain and repair in order to avoid accident and danger.
●Maintain and inspection	Before inspection and cleaning, please cut off power supply of electric boxthat controls the branch damper. Set 3-directional manual valve installed to PD3 OFF, and remove remaining pressure inside of cylinder. (Please refer to Name of each components and method of cylinder disassembly on item 2). (For further information about electric-controlled box controlling PD3, please refer to relevant part in this manual.) After inspection and cleaning, please make sure to have cylinder components mounting bolts and all bolts firmly fastened. In case of maintenance and repair, please contact your nearest Matsui after-sales office.

⚠Caution

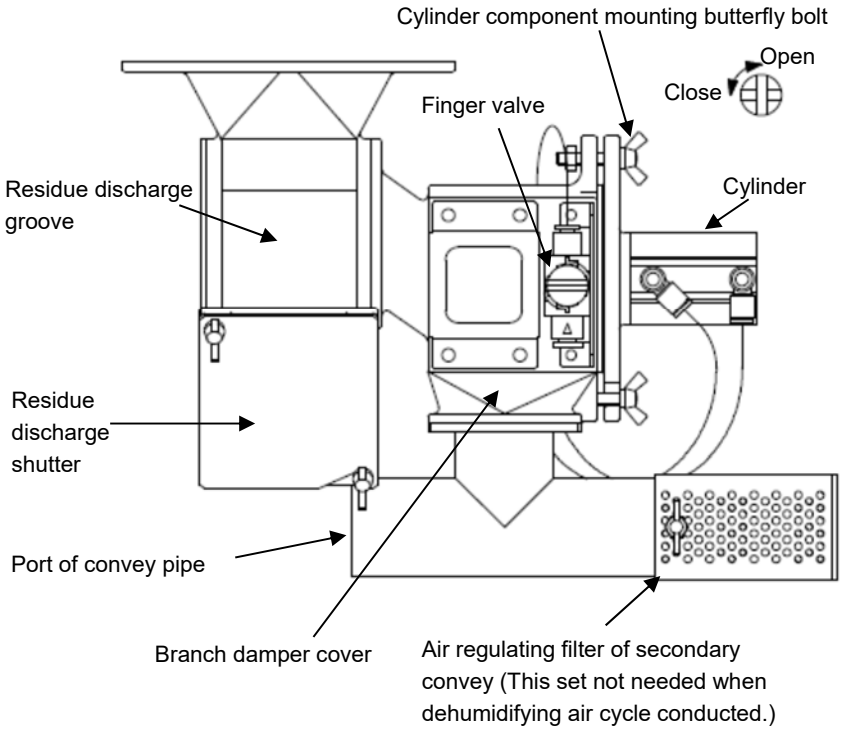
●Warning labels	Please keep the label legible until you dispose of this unit.

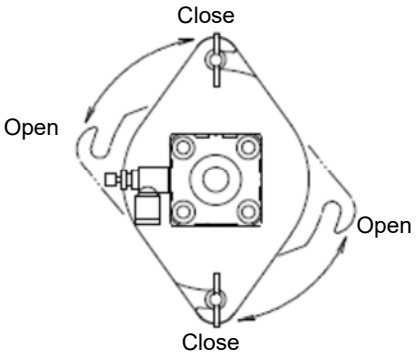
* While switching the valve, material overflow may occur by different material. However, this is normal, not device abnormity.

2. Names of all components and cylinder components disassembly method



Warning sticker

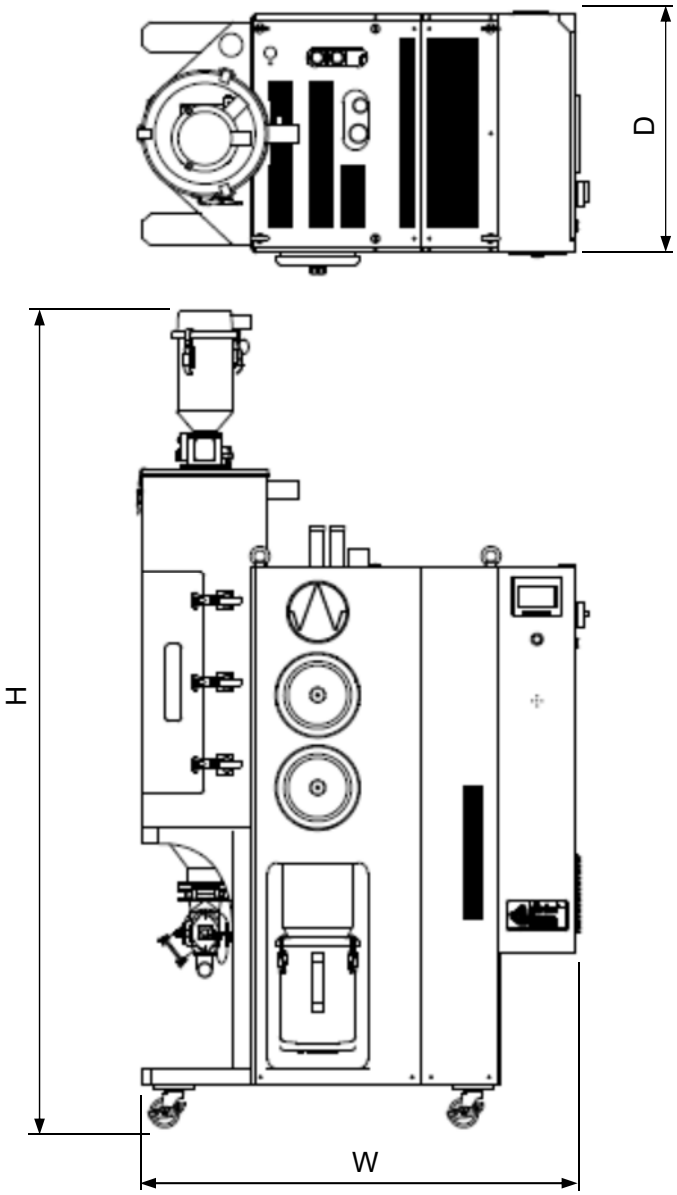




[Cylinder components disassembly method]
Please loosen cylinder component mounting butterfly bolt, rotate cylinder component to left, and pull it out.

When installing cylinder component, please operate in reverse order.

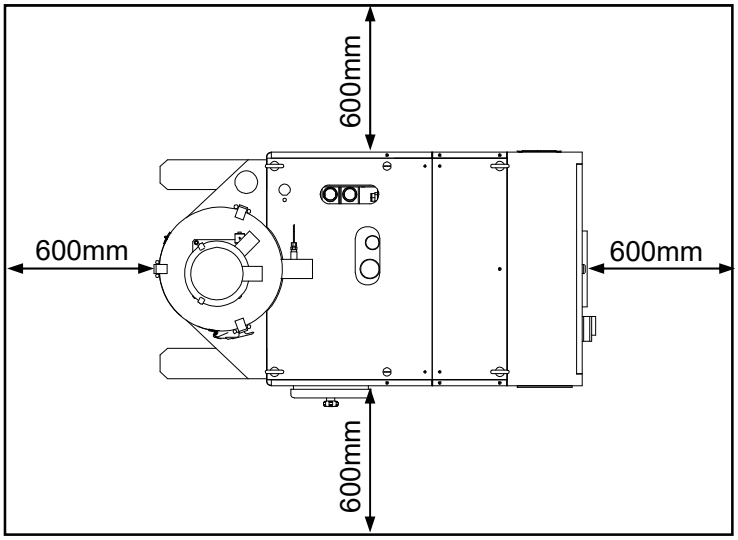
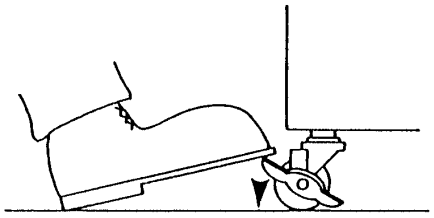
6. Outer dimension (mm)

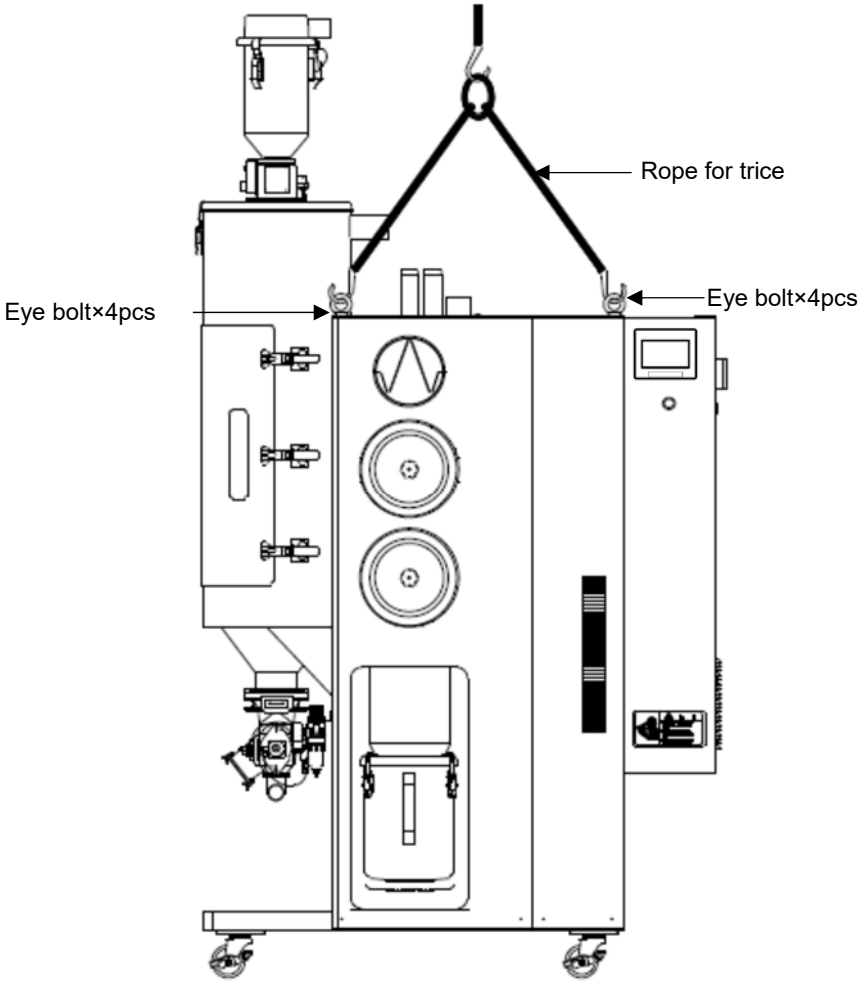


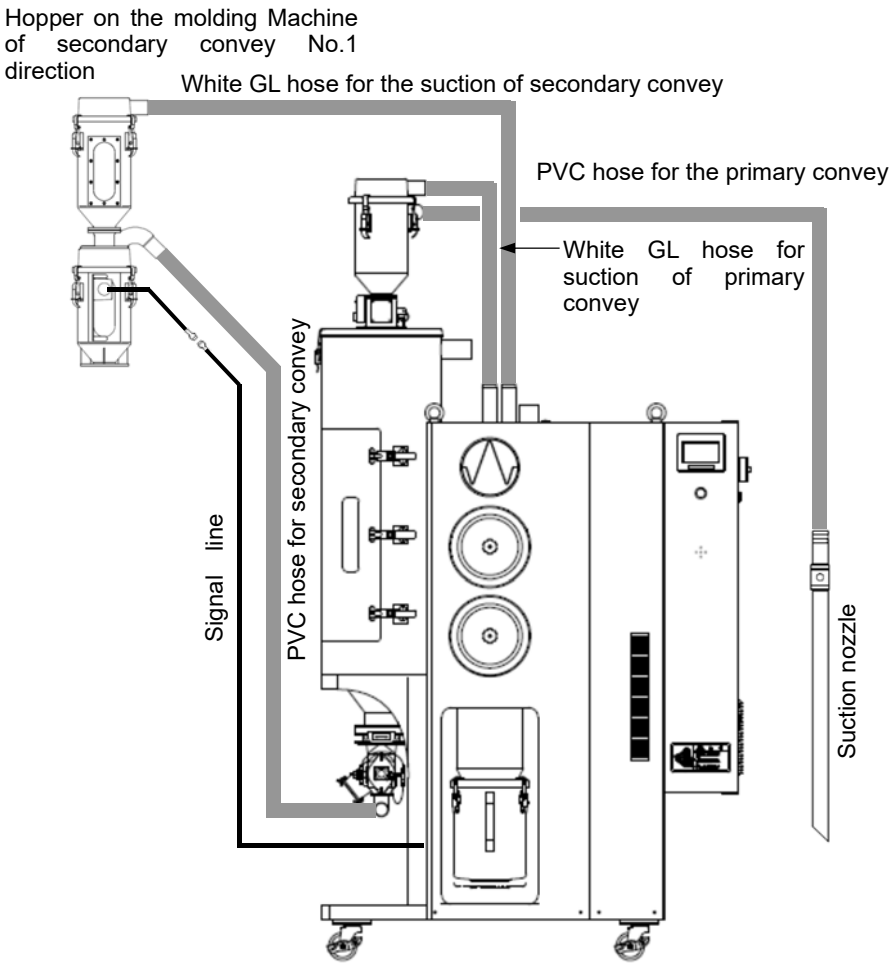
Model	-150	-350	-650	-1500
W (mm)	1125	1191	1486	1910
D (mm)	618	618	638	914
H (mm)	2117	2203	2509	2689
Gross weight (kg)	270	290	400	690

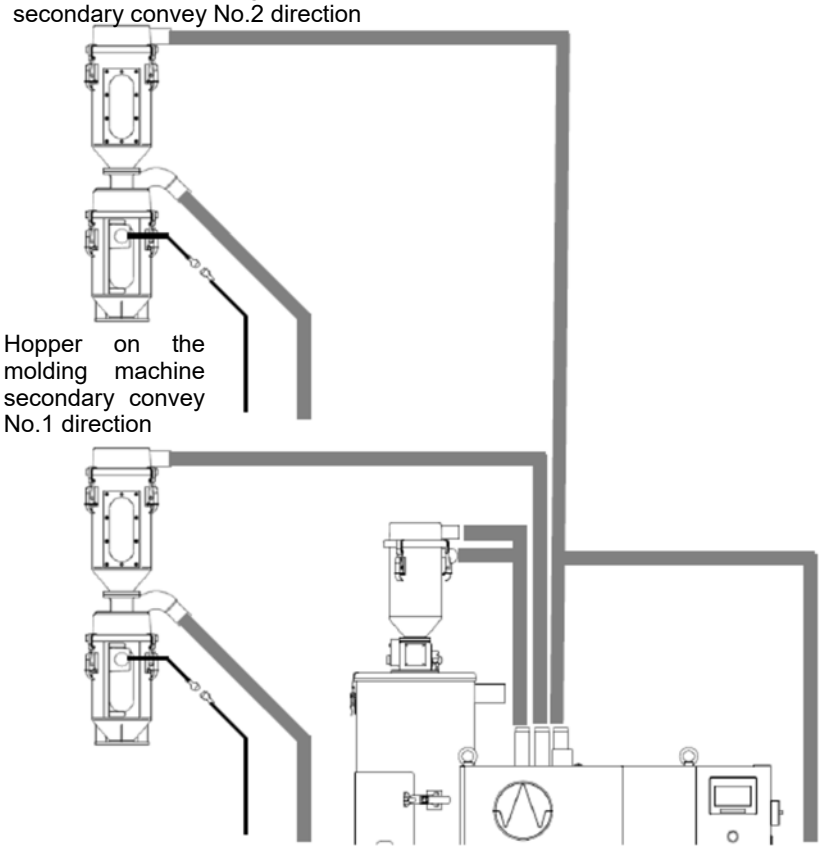
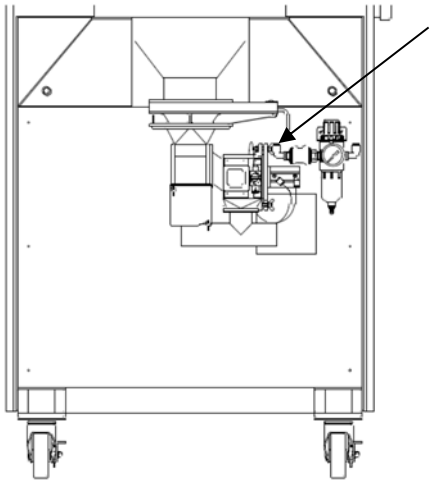
Chapter 3. Installation

1. Equipment installation

Step	Item	Operation Content
1	Installation of Device	Please install it on the smooth ground. The installation site is shown in the following drawing. Please set aside some room for maintenance and item-by-item checking. 
2	Caster brake	As it is shown in below picture, step on the brake of the caster with brake. 

Step	Item	Operation Content
3	Movement of Device	Please confirm if the eye bolts, which are used to trice the device to move on the top of the device, are reliably tightened up. Then hang the rope that has hook at each end and use your company's crane to trice the device to move. In addition, the stuff in the hopper must be cleared up before the device is triced.  **Caution** Be sure to use a hoisting rope (with hook) which can withstand the mass of the unit.

Step	Item	Operation Content
4	Installation of the Small hopper on the Molding Machine and Connection of the Hose	- Install a hopper on the molding machine. Install surely with the gasket and the bolt for without the air leakage. - Please connect PVC hose and the suction nozzle for primary convey. Fasten up the connection part surely by the hose band. - Connect PVC hose for the secondary convey. Fasten up the connection part surely by the hose band. - Connect white GL hose for the suction of secondary convey. Fasten up the connection part surely by the cuff and hose band. [Standard specification (Secondary convey No.1 direction] 

Step	Item	Operation Content
5	Installation of the Small Hopper on the Molding Machine and Connection of the Hose	[Option specifications(Secondary convey 2 directions] Hopper on the molding machine of secondary convey No.2 direction  Hopper on the molding machine secondary convey No.1 direction
6	Connection of compressed air	Please connect compressed air piping to supply port of primary convey of filter regulator.  Compressed air supply port: φ6 (for air hose)

2. Power supply connection

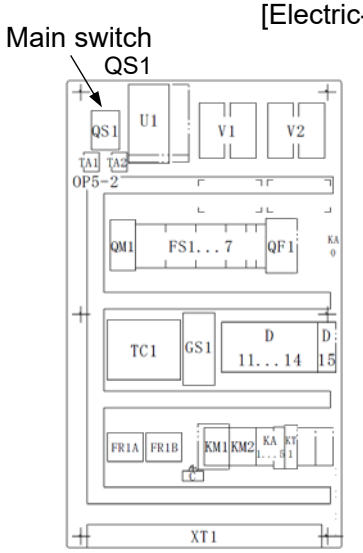
Step	Item	Operation Content
1	Connection of power supply wire	Please open the item-by-item checking door of the electric-controlled box and connect the power supply wire from the electric-controlled box to the 3-Phase AC power supply of protective device of your company.

MJ5-i-150	200, 220VAC	30A
	380, 400, 415, 440VAC	15A
MJ5-i-350	200, 220VAC	30A
	380, 400, 415, 440VAC	15A
MJ5-i-650	200, 220VAC	50A
	380, 400, 415, 440VAC	30A
MJ5-i-1500	200, (220)VAC	100A(125A)
	380, 400, 415, (440)VAC	63A(50A)

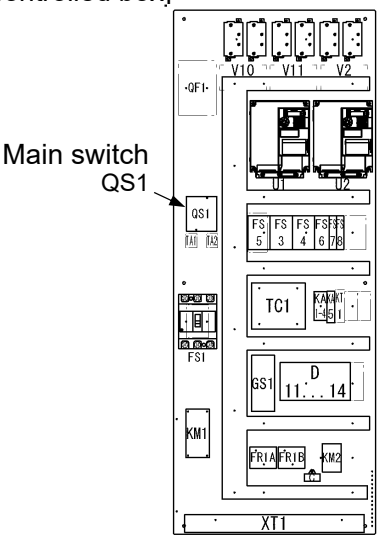
●Protective device: circuit breaker, leakage breaker, fuse, etc

* If the power supply wire is not attached, please connect power supply wire from equipment protective device to primary side of main switch QS1 inside of electric-controlled box.

[Electric-controlled box]



MJ5-i-150~650



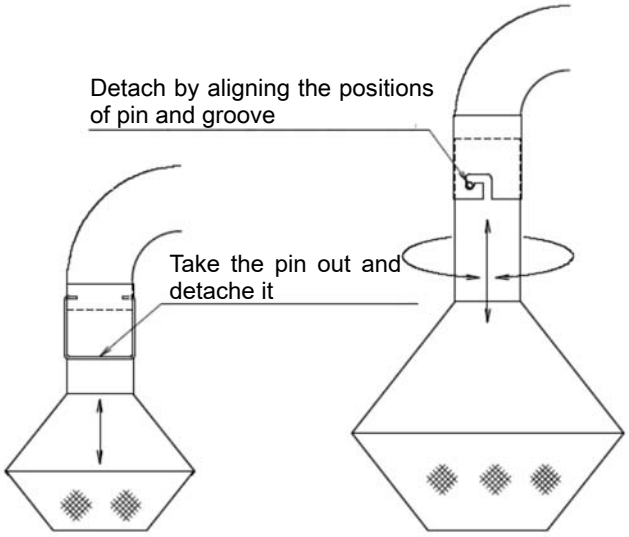
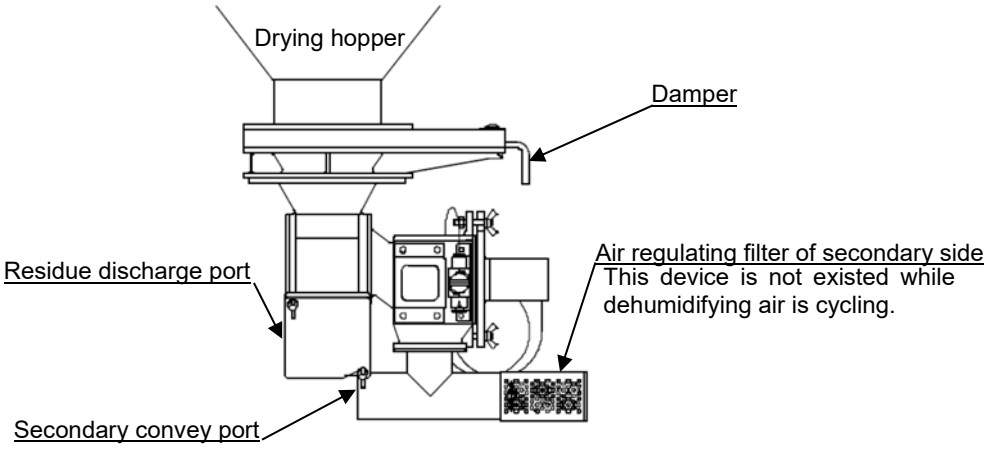
MJ5-i-1500

Caution

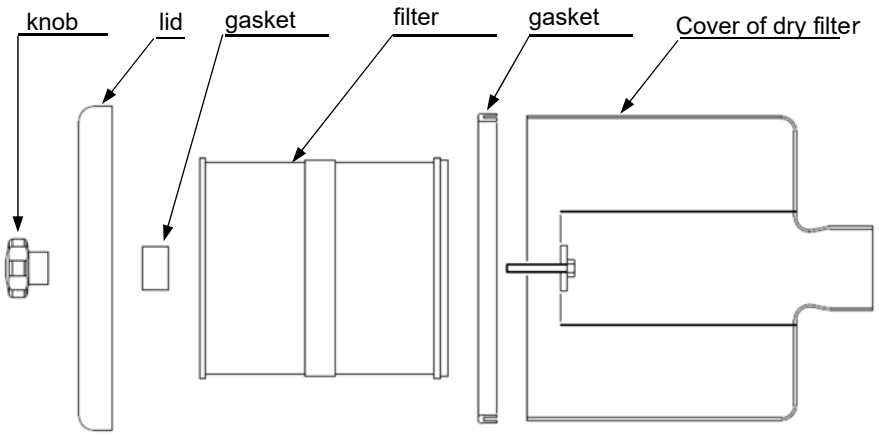
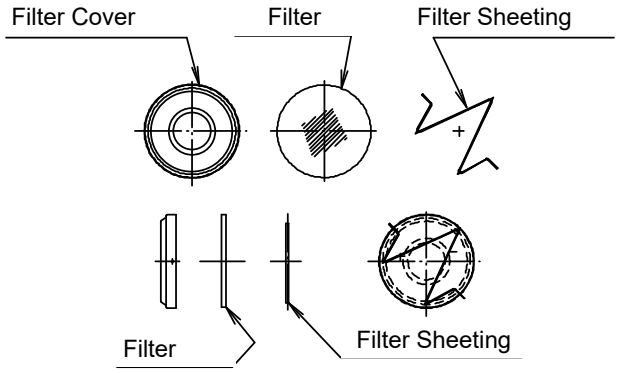
- Be sure to turn the power supply switch to “OFF” before connecting the power supply wire.
- Connect the power supply correctly and ensure that the joint isn’t loose.
- The earth wire must be tightly connected.

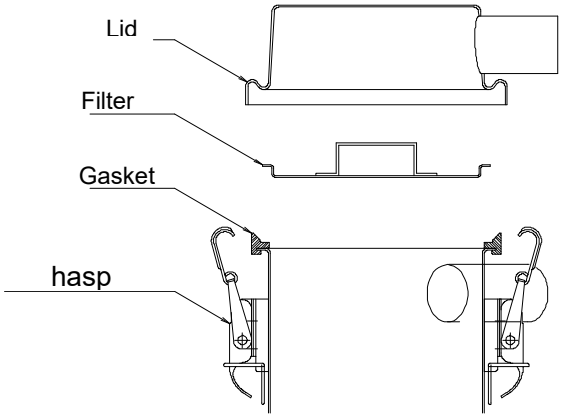
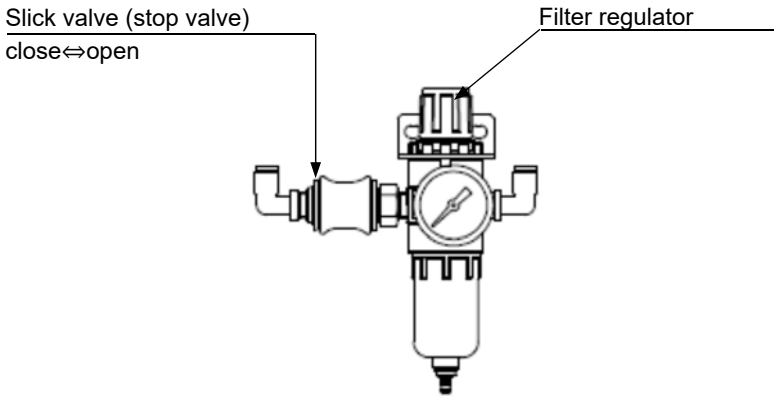
Chapter 4. Preparation for Operation

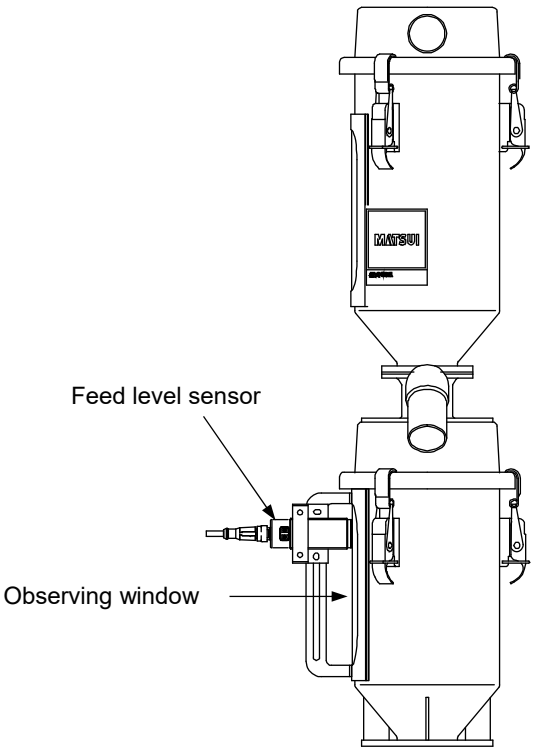
1. Inspecting inside of the drying hopper

Step	Operation Content
1	Please open drying hopper cover and confirm that there is no resin in it, then open the item-by-item checking drying hopper door and confirm that there is no impurity in the hopper.
2	Please check diffuser installation and see if the pin is in the hole or not.  MJ5-i-150~650 MJ5-i-1500
3	Please confirm if the damper and residue discharge port at the bottom of the drying hopper is closed or not. Damper: push→close , pull→open 

2. Condition affirmation of each unit

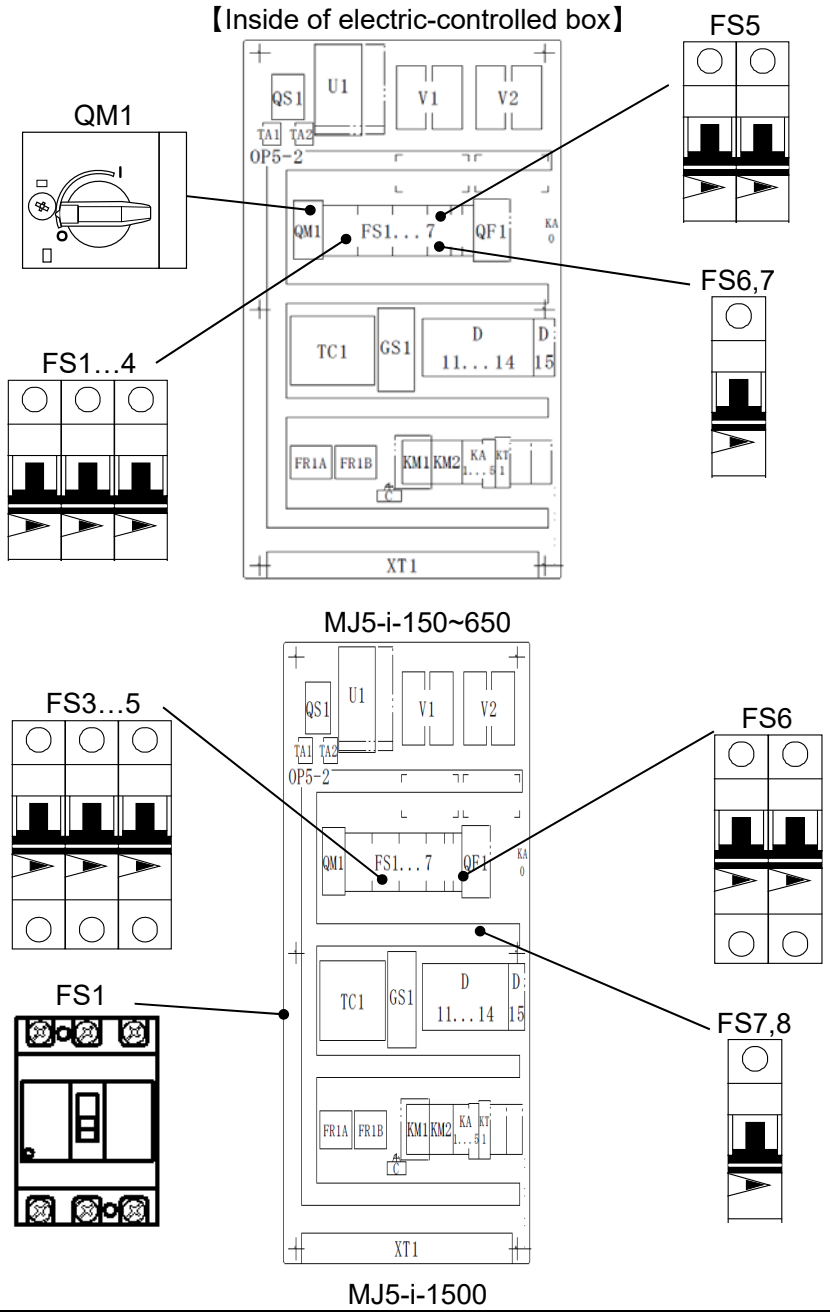
Part Name	Confirmation Content
Drying Filter Convey Filter	Please loosen the knob to detatch filter lid and confirm if gasket and filter are properly installed inside the filter box. Please use the knob handle to screw down the cover so as to prevent the air from leaking out. [Filter box] 
Regeneration Filter	Please confirm that the filter is connected to the suction inlet of blower fan as the following drawing shows. 

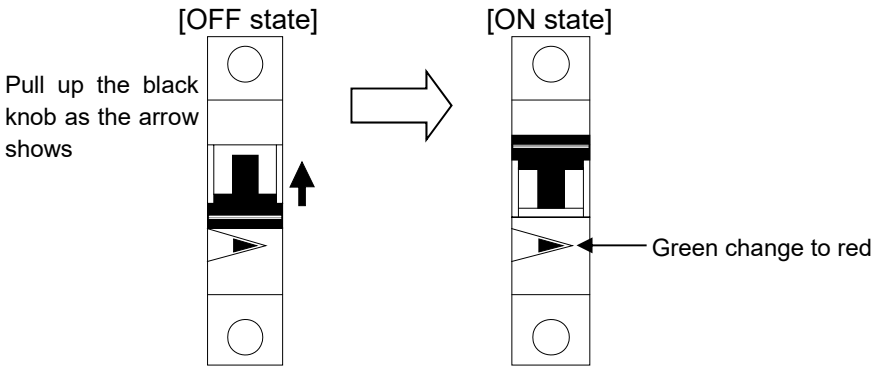
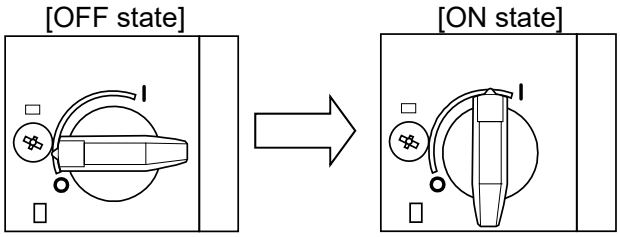
Part Name	Confirmation Content
Jet Clone Hoppers on the molding machine	Please install the filter properly and the gasket as well. 
Hose	Please confirm if each hose tube is correctly connected according to the installation item, especially confirm if the larynx-hoop is reliably tightened up to avoid air leakage.
Pressure Setting of the Filter Regulator	Please open slide valve and use regulator to set the pressure. The setting pressure is 0.39~0.59MPa  **Note** If slick valve (stop valve) moves to close side, air from top of the filter regulator comes off the slick valve.

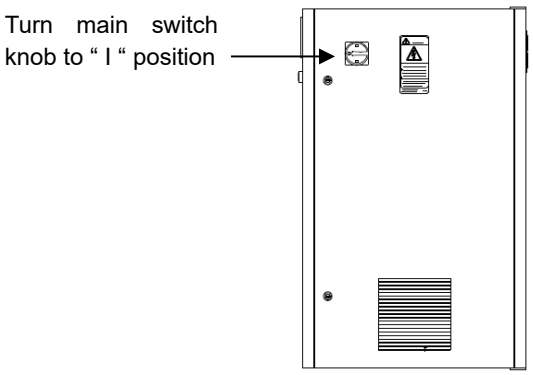
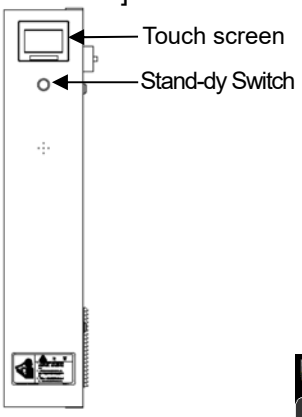
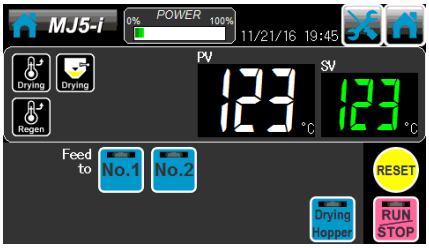
Part name	Confirmation Content
Hopper on molding machine	Please confirm sensor installing position if it is proper and the feed level sensor is surely fastened.
Install part of feed level sensor	Please keep the observing window surface clean. 

3. Power supply

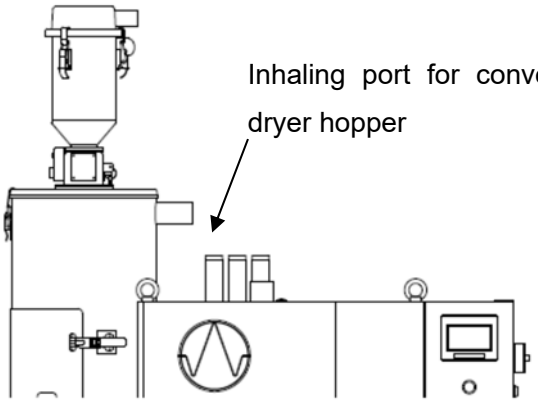
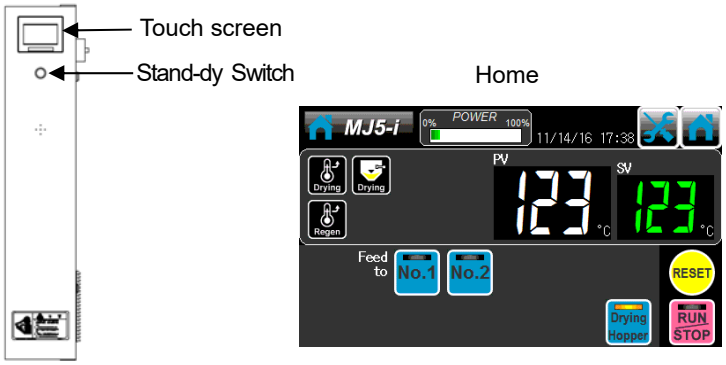
Please follow below steps to provide power to electric-controlled box.

Step	Operation Item	Operation Content
1	ON operation inside of the electric-controlled box	Please open the door of electric-controlled box on the right side and set all devices inside “ON”. 

Step	Operation Item	Operation Content
2	ON operation inside of the electric -controlled box	●Please set below miniature circuit-breakers and molded-case circuit-breakers “ON” - FS1: for drying, regenerative blowers and heating tube power supply use - FS3: for drying heating tube power supply use - FS4: for regenerative heating tube power supply use - FS5: for operating power supply[MJ5-i-150~650] for conveying blower power supply use[MJ5-i-1500] - FS6: for operating power supply - FS7: for operating power supply  ●Please set motor starter “ON” - QM1: for conveying blower power supply use[MJ5-i-150~650]  Please turn the black knob from “○” position to “ I “ Note Please make sure to close the door of electric-controlled box after finishes this work.

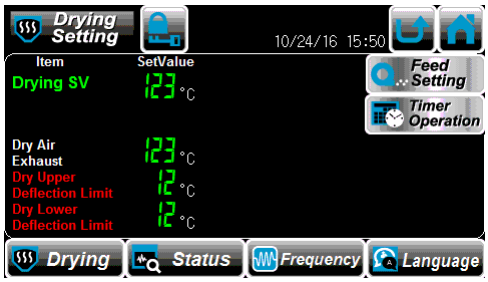
Step	Operating Item	Operation Content
3	Power source supply	Please turn main switch knob to the right side of the control panel to " I " The touch screen of the operating panel shows "Initial Display", then in a fewer seconds, it goes to "Main menu". [Right Side of Electric-Controlled Box]  [Control Panel]  Initial display  Home 
4	Preparation for operation	Please press [⏻] of Stand-dy switch on the operating panel to light up the indicator. ⚠ Caution If the lamp is not lit, please check the power cord and power supply connection.

4. To confirm the correct rotating direction of blower

Step	Operating Item	Operation Content
1	Take off the hose	When the hose of inhaling port of dryer hopper is taken off that is connected in Chapter 3 Installation. 
2	No-load conveyance	Press [⏻] of Stand-by button on operation panel, then press " Drying Hopper " on main menu and run no-load conveying. [Control Panel] 
3	Inhaling confirmation	To make sure that air is being taken in from the inhaling port of dryer hopper.
4	Convey stopped	After confirmed inhaling, please press the " Drying Hopper " on main menu again to stop conveying. ⚠Caution If you find air exhaust from inhaling port of dryer hopper, it means the electrical cable was connected with wrong phases. Please interchange 2 of 3 electrical cables to correct the phase. Having corrected the phase, please go back to Step 2, repeat the operation and confirm the inhaling.
5	Re-connect hose	Having confirmed inhaling, please re-connect the hose which was taken off before.

5. Controller of touch screen setting

For all detailed information about windows alternating operation and set up operation, please refer to “Chapter 2. Equipment Explanation - 4 Name and Function of each controller part of touch screen“.

Display	Set up Content
Temperature setting 	Drying SV (Initial value: 80°C/176°F) To set up material drying temperature Dry Air Exhaust (Initial value: 50°C/122°F) To set up monitoring temperature for hot-air at the port of drying hopper exhaust. **Note** **Please refer to below table to set up drying exhaust temperature.** **In addition, when material temperature (Resin temperature before drying)reaches to above 35°C , please set the drying exhaust temperature +10°C above that of the applicable material.** Below shows the standard set up value of drying exhaust temperature on general applicable material, such as ABS (drying temperature 80°C), PBT(drying temperature 130°C) and PET(drying temperature 160°C). And in particular for those material requiring moisture control below 0.01%(100ppm) for molding, please set their standard drying exhaust temperature above 50°C

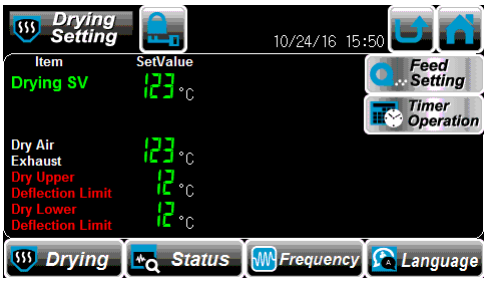
Item / Model	Resin drying temperature		
	ABS 80°C	PBT 130°C	PET 160°C
	Drying exhaust temperature		
MJ5-i	40°C	40°C	50°C

Condition: Suction air 30°C,rh75% (dp+25°C)

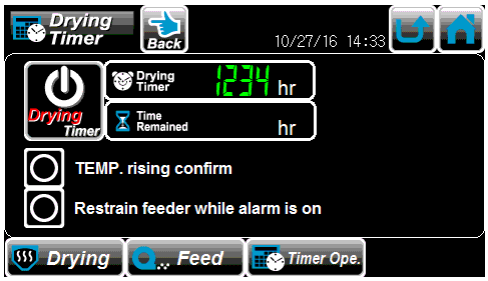
Drying hour: 3 h (ABS/PBT), 4 h (PET)

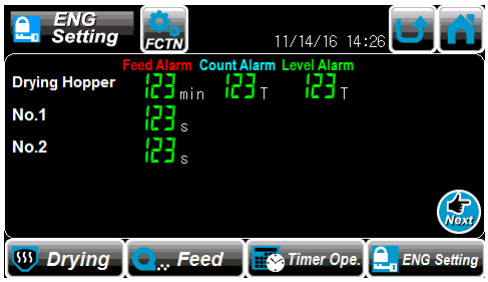
Applicable material temperature 20~30°C

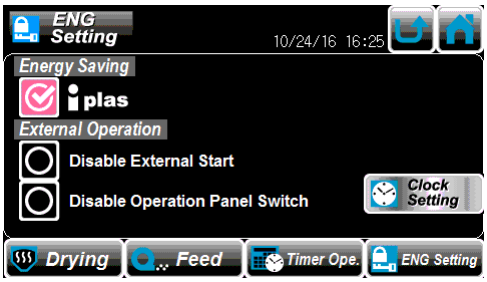
*** As for those material that are not applicablehere, please pay particular attention to that, and consult Matsui in advance**

Display	Set up Content
Temperature setting 	Dry Upper Deflection Limit (Initial value: 10°C/18°F) To set up upper limit alarm range on drying temperature set value. * Matsui's recommended intial value 10°C/18°F. If it is set too low, machine will stop operation due to sensing abnormity caused by drying. Dry Lower Deflection Limit (Initial value: 10°C/18°F) To set up lower limit alarm range on drying temperature set value. Sense abnormity and give out emergency signal, machine will keep working. And, if abnormity avoided, machine will reset automatically.
Feed setting 	Drying Hopper Feed Setting Demand (Initial value: 5s) Set feed level confirm time needed for feed inside of drying hopper reaching set feed level until it goes to convey mode. Feed/Blow(Initial value:[-150/350] 6s, [-650]23s, [-1500]16s) Time needed for feed to be conveyed to receiving hopper on the dryer. Timer set up for feed to be conveyed by 8 times to the receiving hopper on the dryer. The amount of feed to be conveyed will differ by different material, so make sure to adjust the time at actual conveyance. Discharge (Initial value: 10s) Timer set up for receiving hopper discharge of primary convey, from when feed-in convey stops to the next feed-in convey starts.

Display	Set up Content
Feed setting   	No.1 Direction Feed Setting Demand (initial value: 5s) Timer set up for feed level confirm of receiving hopper secondary convey No.1 direction, from when required level reaches to the moment when feed-out convey starts. Batch (initial value: [-150~650] 11s, [-1500] 35s) Timer set up for material cut off from discharge valve on lower part of drying hopper of primary convey (discharge valve open time). Set up timer for secondary convey No.1 direction receiving hopper required amount to be completely discharged from drying hopper. Feed/Blow (initial value: 10s) Timer set up for blowing and cleaning inside of convey piping, from when cut off timer is due --- discharge valve closes to when convey stops. Set up timer for material cut-off to be completely conveyed to No.1 receiving hopper. Discharge (Initial value: 10s) Timer set up for material discharge of No.1 direction receiving hopper, from when convey stops to the next convey starts. Gate Open and Close (initial value: open: 2.0s, close: 3.5s) Timer set up for cut off valve's repeat open and close within set material cut off time. If extend damper open time and shorten its close time, amount conveyed will increase. Damper opens and closes within material cut-off timer; therefore, when alter cut off time, please adjust the total time of damper open and close to make sure it is in consistency with cut off timer.

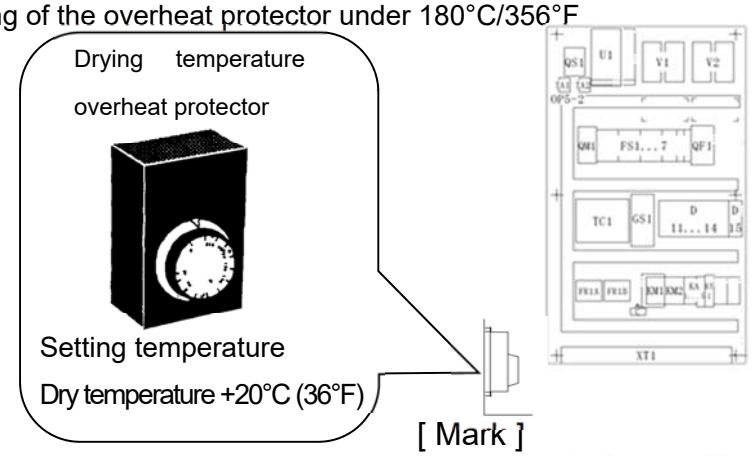
Display	Set up Content
Run/Stop timer 	To set up for using “Run / Stop timer” RUN Run mode (initial value: no value set up) Set up specific date and time or time for repeat for start up operation. STOP Stop mode (initial value: no value set up) Set up specific date and time or time for repeat for Stop operation.
Drying timer 	To set up timer for secondary convey starts to delay Drying Timer Drying time (initial value: no value set up) Set up timer that amounts to initial drying time. (planned drying time) Secondary convey only starts when set up timer is due. TEMP. rising confirm (initial value: no value set up) When temperature rising for drying and regenerative heating confirmed, drying timer is activated. Restain feeder while alarm is on (initial value: no value set up) When drying alarm occurred, secondary side convey stop. **Note** **When drying timer ON, you can not Conveying in spite of the start / stop of the drying. Either stop the drying timer, or drying is complete and the conveying will be possible.**

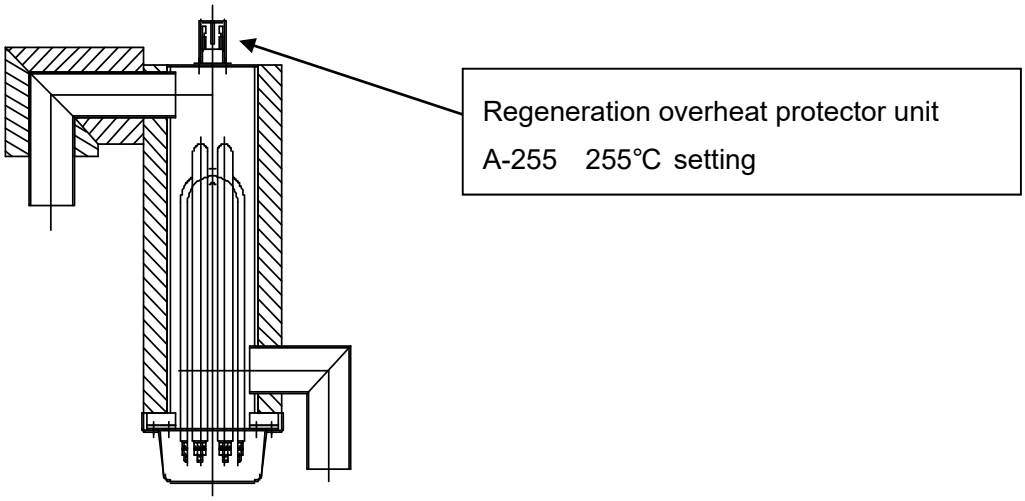
Display	Set up Content
ENG Setting 	Drying Hopper Feed Alarm Time setting Feed Alarm Time (Initial value: 30min) Set up timer from when drying hopper convey in starting up to until when it alarms for continuing level empty. Monitor drying hopper convey abnormity. Count Alarm (Initial Value: 50 times) Set up over full-level frequency during drying hopper conveying Monitor drying hopper convey decrease abnormity. Level Alarm (Initial value: 10 times) Set up No.1 or No.2 convey frequency from when drying hopper reaches full level to when its empty level tested. Monitor discharge abnormity inside of drying hopper.
	No.1 Direction Feed Alarm Time setting Feed Alarm Time (Initial value: 180s) Set up timer from when No.1 convey in starting up to until when its receiving hopper alarms for continuing level empty. Monitor No.1 convey abnormity.
ENG Setting 	Dust Box Cleaning (Initial value: No set) Set up convey frequency by using alarms to notify dust collecting bin cleaning time. In case of conveying more dust, please set up frequency before dust collecting bin reaches full level. You can waive this function by setting value “0”

Display	Set up Content
ENG Setting 	External Start (Initial value: Disable) You can set external start up ON, when using external start up signal input or weekly timer option. Operation Panel Switch (Initial value: Disable) Please set up remote status when using external start up signal input or weekly timer option.

6. Temperature setting up of the overheat protector

For safety, this unit has an overheat protector, that serves as a safety device for drying and regenerating heat tube, as its standard equipment. If the sensor (temperature detector) reaches a temperature higher than the temperature setting of the overheat protection device, the power supply to the heater is cut off. In this situation, heating tube and blower (drying, regenerating, conveyance) also stops. In addition, the set up device of overheat protector is installed in the electric control box to regulate the overheat test temperature.

Step	Operating Content
1	Set the temperature setting of the overheat protector to a value 20°C/36°F higher than the drying temperature (SV temperature setting). When temperature set up revision is needed, rotate dial to 220°C/428°F firstly, then to needed temperature. For the standard specifications, please use the temperature setting of the overheat protector under 180°C/356°F  The temperature controller has upper and low limit alarm settings. When the upper limit alarm occurs, turn the heater OFF and, after the cooling time has elapsed, the blower is turned OFF, operation stops. (Both the upper and low limits are set to 10°C/18°F at the factory before shipping.)

2	Regeneration overheat protector unit (Bimetal thermostat) 
2	When a sensor (measurement temperature part) is heated exceeding the setting temperature of overheat protector, the operation power is cut off, the heater, blower stops. ALARM which flickers to alarm abnormity, and the buzzer rings. After cooling the heating part sufficiently, identigy the cause and fix the trouble, you can restart the unit.（Please refer to Chapter 5. Operating Procedures）. Besides, if the sensing temperature is still above the set temperature, the operating power supply shall not be connected even preparation switch is pressed.
3	If the sensor (temperature detector) reaches a temperature higher than the temperature setting of the overheat protector, the unit is automatically shut off, and the heater overheated alarm is triggered. ⚠ CAUTION When the heater overheated alarm is triggered, perform the recovery operation according to “Chapter 7 Alarm Function” and “Heater Overheated.”

NOTE

When the overheat protector is tripped, the unit requires one hour or longer to cool.

The overheat protector will not reset while the unit is still insufficiently cooled. As the recovery operation cannot be performed in this state, please allow the heater to cool sufficiently before recovery.

7. Jet Clone Operation

Start up the feed convey to drying hopper, set up the timer for discharge, and the timer for the blower to start operation. When the blower starts operating, the baffle will be closed.

↓

Feed will be conveyed to Jet clone according to timer for conveyance.

↓

The blower will stop when the timer for conveyance used up.

If suction pressure is low, baffle of the Jet clone opens, and feed will be discharged to drying hopper on the lower part within the discharge timer.

↓

Repeat above steps.

↓

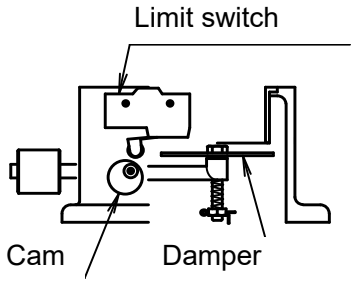
When drying hopper is full, Jet clone stops convey according to the signal by limit switch installed on the Jet clone.

↓

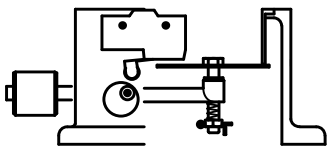
After that, even though the stuff decreases and the limit switch gives the require signal, the blower will not start until secondary convey completely finished, and delayed, in this way, the damper may not occlude.

Damper operations

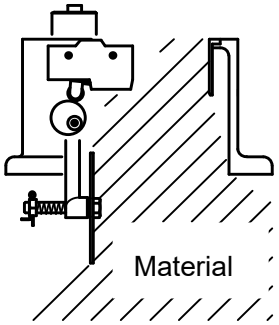
(1) Natural state



(2) Close condition (suction type)



(3) Material full condition (Limit switch operates, Material convey stops)



8. Outline of Aero Power Hopper

This is a material conveyance hopper installed onto the molding machine.

This has the following features by flowing conveying material in hopper.

① Fine powders and particles are separated and removed.

② If crushed material is compounded, natural pellets and crushed material are mixed.

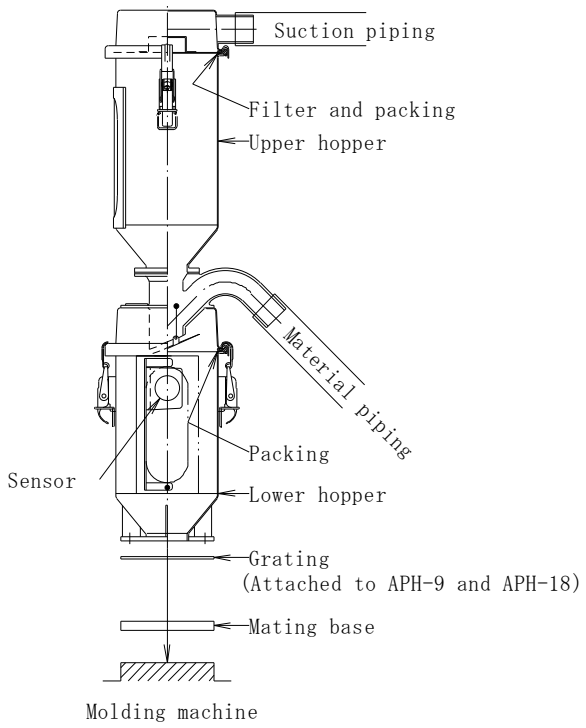
1. Inspection before use

① Check that there is no unnecessary material in the hopper.

② Check that the filter and packing are correctly installed with reference to the attached drawings at end.

2. Installation to molding machine

Overview



Refer to the overview

(Referential example APH-3)

① Install this hopper onto molding machine via the mating base with bolts.

② Connect the suction piping and material piping. Securely fix the piping using hose bands so as to prevent air leakage.

③ Connect electric wires to the sensor.

3. Test run adjustment

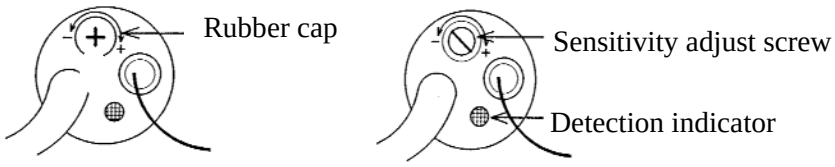
1. Sensor sensitivity adjustment (Proximity switch E2K type)

If the presence or absence of the material is not correctly detected, adjust the sensitivity of the proximity switch by the following procedure.

(1) Remove the material in the hopper.
Turn “ON” the power for the conveying origin unit.

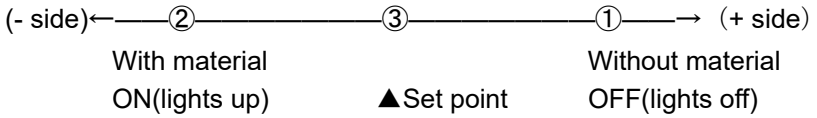
(2) Check whether there is clearance of 1mm or more between the end of the sensor and hopper peep hole.
In the case of clearance, loosen the tightening screws (two pieces) for the proximity switch fixing bracket, and adjust the distance between the end of the sensor and hopper peep hole to about 1mm and fix them.

(3) Remove the rubber cap on the back of the proximity switch.



(4) Adjust the sensitivity adjust screw with the included screw driver and perform operations in the following ①, ② and ③.
① Adjust the screw to a point where the sensor turns OFF from ON with no material (Detection indicator lights off).
② Adjust the screw to a point where the sensor turns ON from OFF with material being loaded (Detection indicator lights up).
③ Set the sensitivity adjust screw to a middle point between ① of turning OFF from ON with no material and ② of turning ON from OFF with material being loaded.

Note: Adjust with material to be actually used. Also, in the case of various materials, perform the operations of ①, ② and ③ with material whose apparent specific gravity is lightest.

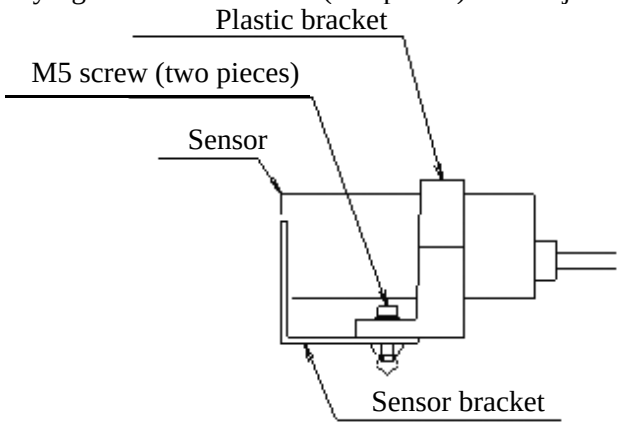


(5) Install the rubber cap removed in procedure (3).
Convey material to check that the presence or absence of material is correctly detected.

2. Adjustment of sensor installing position (Not applicable to APH-1 type)

The sensor can be moved up and down by slightly loosening the M5 screws (two pieces) fixing the sensor bracket and plastic bracket.

Securely tighten the M5 screws (two pieces) after adjustment.



(1) When conveying material from one conveying origin unit to one molding machine (One-by-one conveyance)

Adjust the sensor position so that conveyance starts at any material amount according to the material consumption of the molding machine.

For dried material, quality of the molded product is generally improved with a shorter dwelling time on the molding machine.

<Material conveying amount for one time can be adjusted by the conveying origin unit. Adjust it to a conveying amount equal to or less than the maximum conveying amount of the applicable model. For the maximum conveying amount, refer to 7. Specifications.>

(2) When conveying material from one conveying origin unit to two molding machines (One-by-two conveyance)

Adjust the sensor position so that the entire conveying material amount is reliably loaded into the lower hopper and conveyance starts.

<Material conveying amount for one time can be adjusted by the conveying origin unit. Adjust it to a conveying amount equal to or less than the maximum conveying amount of the applicable model. For the maximum conveying amount, refer to 7. Specifications.>

Note

A damper is provided between the upper hopper and the lower hopper. When conveying material remains in the damper part, conveyance failure result.

4. Maintenance and check

1. Cleaning of filter

A filter (porous plate made of stainless steel) is provided in the upper hopper. As it is clogged with fragments of crushed material, regularly remove them.

2. Damper

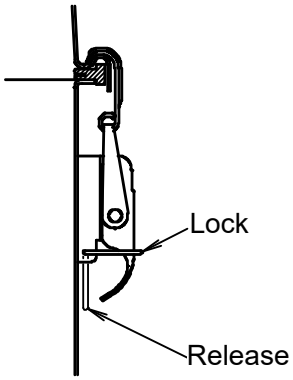
A damper is incorporated in the upper hopper discharge part. This damper is suspended by two stainless steel wires of 0.5mm.

These wires have sufficient strength and will not be cut during normal use, however, regularly check them when cleaning.

The conveyed material flows in the upper hopper in a normal state, however, if the above wires are cut, the conveyed material directly falls into the lower hopper. If such a state is observed, also check the wires.

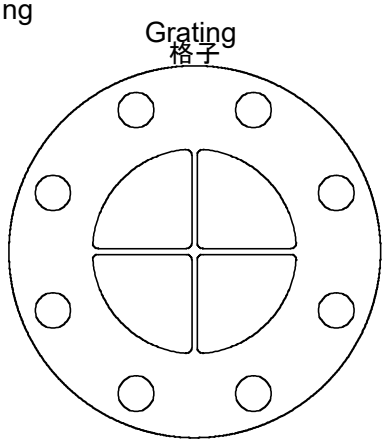
5. Precautions

1. Lock for catch clip



A lock mechanism is provided to prevent catch clips (6 locations) from being released due to vibration of molding machine or unintended operation. Be sure to lock when using the clips.

2. Grating



A grating is attached to APH-9 and APH-18. This is for preventing the damper from falling into the hopper opening of the molding machine even if the wires are cut. Be sure to install the grating to the hopper opening of the molding machine, and attach it even when relocating.

6. Specifications

Model APH-	1	3	3W	6	6W	9	18
Conveying pipe caliper (mm)	38	38	38	50	50	50	50
Suction pipe caliper (mm)	38	38	38	65	65	65	65
Maximum conveying amount (kg)	1	1	1	2	2	3	6
Conveying hopper capacity (L)	4	4	4	8	8	12	24
Conveying hopper diameter (mm)	140	140	140	200	200	245	300
Charge hopper capacity (L) (Demand level switch)	0.8	3	3 +allowance 2	6	6 +allowance 4	9	18
Charge hopper diameter (mm)	50A pipe	140	200	200	245	245	300

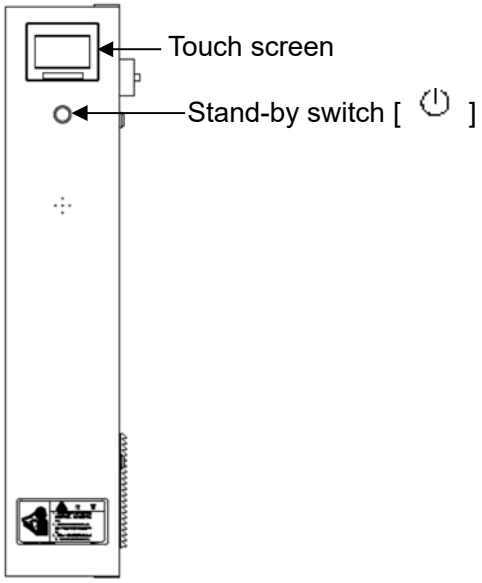
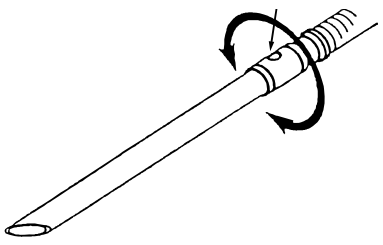
Applicable unit model / MJ3 MGD(*1) These are general guidelines and it is absolutely necessary to calculate from the molding cycle time and weight per one shot. Selected on the assumption that the drying time is three hours.

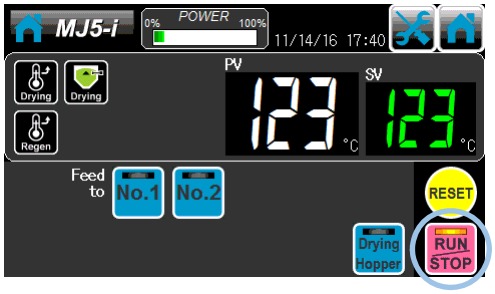
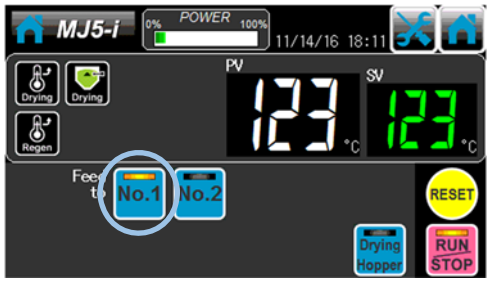
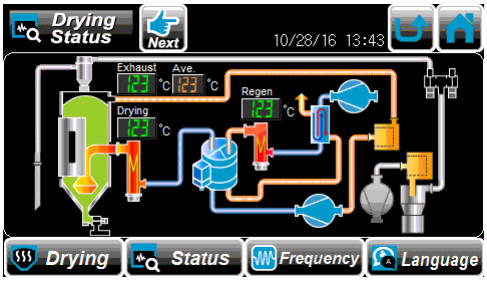
Secondary conveyance one direction	15/25	15～150	—	200/300	—	200/300	—
Secondary conveyance two directions	—	15～75	100/150	200	300	200/300	—

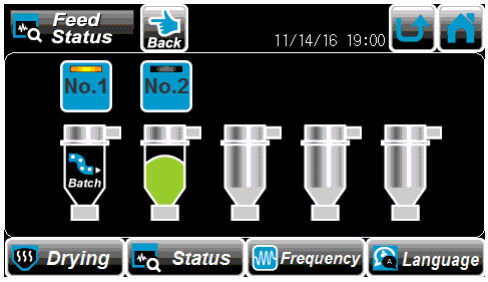
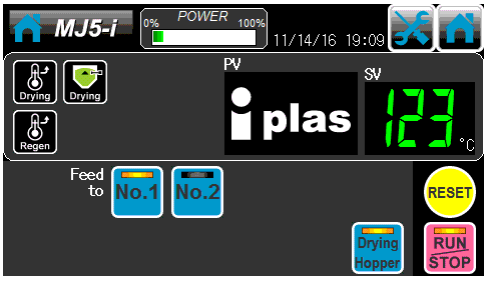
Applicable unit model/ DMD4 (*1)(*2) When applied to DMD4, it is necessary to be compatible with optical specifications.

Secondary conveyance one direction	—	25～200	—	—	—	—	—
Secondary conveyance two directions	—	25/50	100/200	—	—	—	—

Chapter 5. Operating Procedure

Steps	Operating Item	Operation Content
1	Preparation for operation	Please press [⏻] of ready switch on the operating panel to lighten up the indicator. 【Operating panel】 
2	Material conveyed to drying hopper.	Please press [Drying Hopper] in the main menu to set the indicator up, at this moment, material started to be conveyed to drying hopper. Besides, please make sure to confirm if material convey is over or not.  【Use stuff-absorbed lance to regulate the secondary air suction quantity】 Please insert the stuff-absorbed lance into the conveying side, then rotate the secondary air regulation ring to regulate so as to successfully convey the stuff. Secondary Air Regulating Ring  If the secondary air regulation ring is over-rotated, it may cause the stuff jammed in the conveying hose.

Steps	Operating Item	Operation Content
3	Drying started	Please hold press [RUN STOP] in main menu to lighten up the indicator. Drying starts. In case of setting up timer for machine start up, dry operation begins after the timer is due. 
4	Secondary convey starts	Please press[No.1] in main menu to set indicator on. Secondary convey No.1 direction starts.  ⚠Caution Material shall be conveyed to the molding machine, only when they are sufficiently dried for the initial stage. If material are not sufficiently dried, molding defects shall occur.
5	Operating status confirm	With [DryingStatus] window, you can confirm temperature status of each part during drying operation and machine working status. 

Steps	Operating Item	Operation Content
6	Operating status confirm	Press [Next] in [DryingStatus] window to go to「FeedStatus」window and confirm each stuff convey status.  Press[Back] to go to「DryingStatus」window.
7	plas Operating status confirm	When [plas] in main menu flickers, this machine is in lasting drying working condition. This machine seems to stop working from the outlook, but actually, it is still in normal working operation. Besides, present value of drying temperature also goes lower than that of the set up value, but that is not abnormal. 

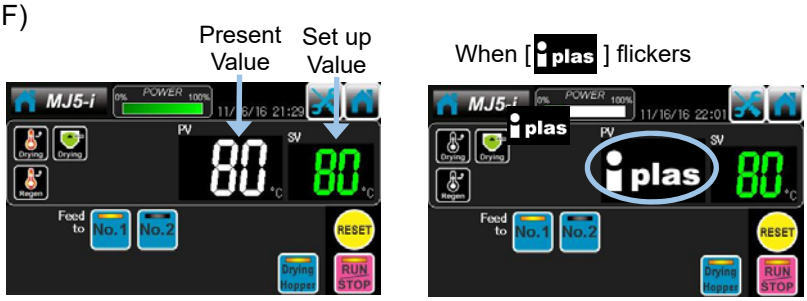
Steps	Operating Item	Operation Content
8	Operations stop	Please follow below steps to stop operation: (1) Please press [Drying Hopper] on the main menu to stop material convey to the drying hopper. When this operation is applied during material convey, the convey cycle stops. ([Drying Hopper] flickering→off) (2) Please hold press [RUN STOP] on the main menu, then heater goes to off and switch to cooling with only blower starting up. When the timer set up for cooling is due, blower stops and drying stops. ([RUN STOP] flickering→off) (3) Press [No.1] on the main menu to stop secondary convey No.1 direction. (When this operation is applied during conveying, the cycle stops. ([No.1] lamp from flickering→off.)
9	Power supply OFF	Please turn the knob of disconnecting switch on the right side of the electric-control box to 「○」, then the touch screen turns to OFF. ⚠Caution Please don't turn power supply to OFF during cooling process when drying operation stops. If blower stops at once, remaining heat from the heating part may cause trouble or problems related to material agglomeration.
10	About reset after electricity out of supply	When electricity out of supply for more than 70 ~ 190ms, operation stops at once. At this moment, remaining heat from the heating part may cause device trouble or problems related to material agglomeration; therefore, in case of resetting, please check the device sufficiently to make sure there is no starting problems, then, machine can be restarted. Especially, when overheat obnormity is inspected, machine cannot be restarted. In this case, machine is to cool down naturally for about 1~2 hours before restart.

Chapter 6. Maintenance and Inspection

⚠ High Temperature Attention:

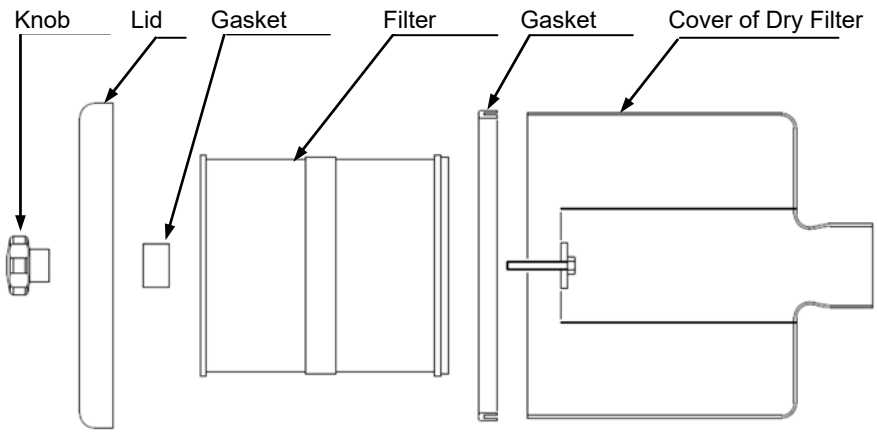
Please perform maintenance and item-by-item checking after the device completely cools down (natural cooling normally takes five hours), for the device may continue to keep high temperature after it has stopped operating for some time. Furthermore, pay attention that even though the exterior part of the device has cooled down, the inner part of it and some dry stuff may still keep high temperature.

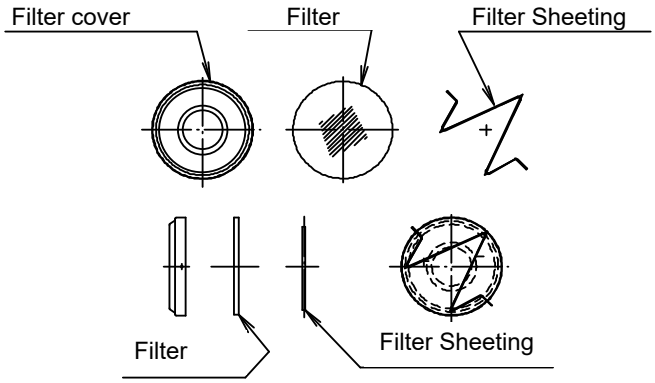
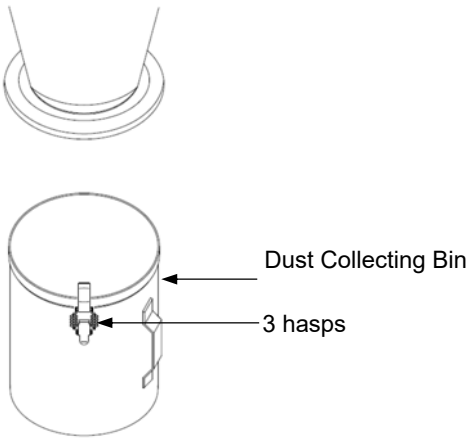
1． Daily maintenance and inspection

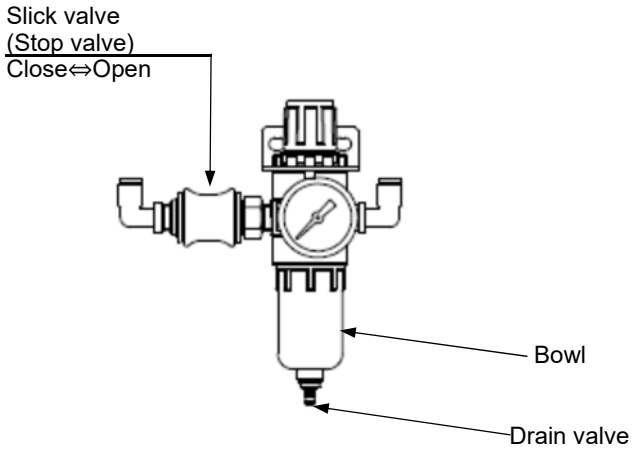
Maintenance and Item-by-Item checking item	Operation Content
Temperature confirmation	Please confirm if drying temperature and regeneration temperature are controlled by the setting temperature of the touch screen. **【Drying temperature confirm】** Please refer to the present value and setting value on the main menu. Normal drying temperature is among setting value ±2～3°C(±3.6～5.4°F)  ※ When [plas] is flickering,this machine is in lasting drying working condition. The present value is switched to [plas] . **【regeneration temperature confirmation】** Please refer to 「temperature monitor」for confirming. Normal regeneration temperature is between 210°C~220°C (410~428°F).（It is normal that regeneration temperature changes with the ambient temperature.）  ※ When [plas] is flickering,this machine is in lasting drying working condition. The present value is switched to [plas] .

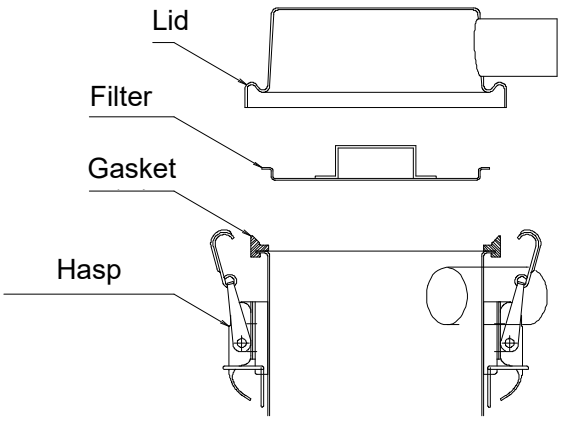
Maintenance and Item-by-Item checking item	Operating Content
Confirming rotation of blower	【For the drying blower】 Remove the hose from the exhaust port of the drying hopper and confirm that air flows swiftly. 【For the Regeneration blower】 Confirm that air swiftly comes out from the recycle exhaust port. ⚠ WARNING As powder and fragments of material may scatter at this time, please exercise caution and wear protective glasses and gloves when making confirmation.

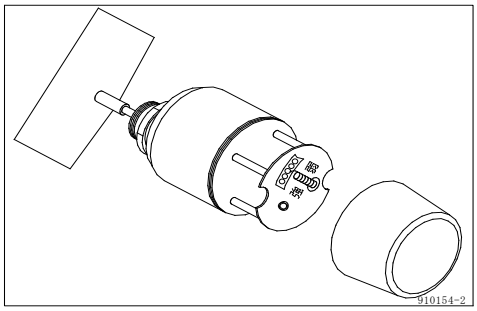
2. Weekly maintenance and inspection

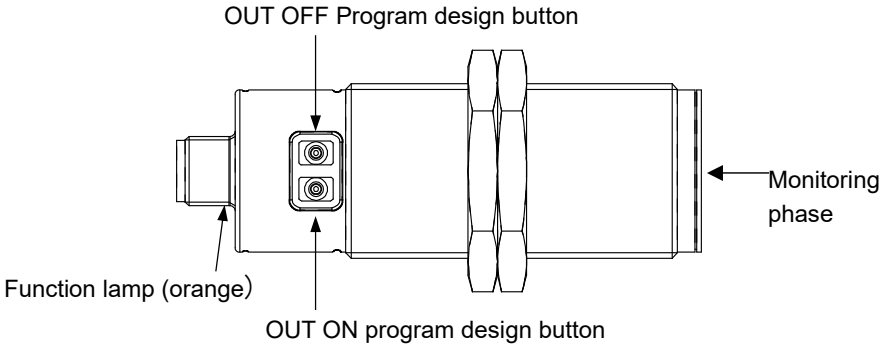
Maintenance and Item-by-Item checking item	Operation Content
Clearing of the Filter	**Caution** 1. Please wear respirator to prevent dust when clearing the dry filter, for the impurity attached on the filter may fly in the air. 2. Pay attention that the jamming of the filter may make its operation temperature and air rate unstable, and then cause fire hazard. * If the filter is jammed, take it off and use clean dry air to blow off the attachment. * Different surrounding may cause different polluted condition, be sure to carefully check regularly and clear the pollutant carefully. * After complete checking, put the filter back and fix it. *** If the mesh is badly jammed, or surface attached with oil film, filter undergoing severe color change and component quality deteriorating or shape distorting, please replace it with a new one.**
Clearing of Feeding Filter Clearing of Dry Filter	Please take off the filter and check if it is jammed and clean it up. [Disassembling and Clearing of the Filter] 

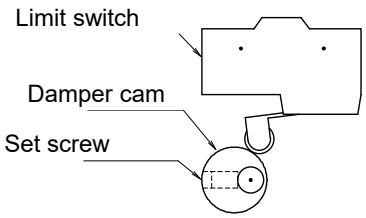
Maintenance and Item-by-item checking item	Operation Content
Clearing of the Regeneration Filter	Please take off filter and check if it is got jammed or not and clear it up. 
Dust Collecting Bin of air source unit	Please take off dust collecting bin and remove the fine particles that is stagnant inside.  * Please replace gaskets with new ones when being degradated, transformed, discolored or become hardened.

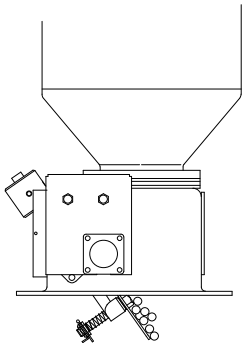
Maintenance and Item-by-Item checking item	Operation Content
Method of discharging drain of air kit	Discharge drain that is stagnant in the bowl. If pressing drain valve on lower part of the bowl, air and drain will be discharged at the same time under the condition of compressed air being supplied (slick valve switched [on] side) . Receive the drain with the can. 

Maintenance and Item-by-Item checking item	Operation Content
Filter cleaning Jet Clone Receiving hopper on molding machine	Please open the top cover of the sucking hopper and then remove the filter to check clogging up or not. If clogging up, puff it away with dry and clean air. Get rid of the adhering material.  * If the adhering material can't be puffed away with dry air, get rid of it with spiky head of iron wire, etc. * Please replace a new gasket when the old one is seriously aging, distorted, color changed or hardened. Caution ○ Air leakage will occur if the filter is distorted, which will result in feeding can't continue; therefore, please pay more attention to the using manner. Once the filter is distorted, hammer it to stretch with soft objects such as wood hammer or rubber hammer, etc. If it can't be repaired in any way, please replace a new one. ○The dirt adhering on the filter will fly in the atmosphere while cleaning the drying filter. Please wear a respirator to prevent the dust. ○The conveying blower running with overload or with low conveying efficiency is always resulted from the clogging up to the meshes of the filter. Therefore, you should pay enough attention to it.

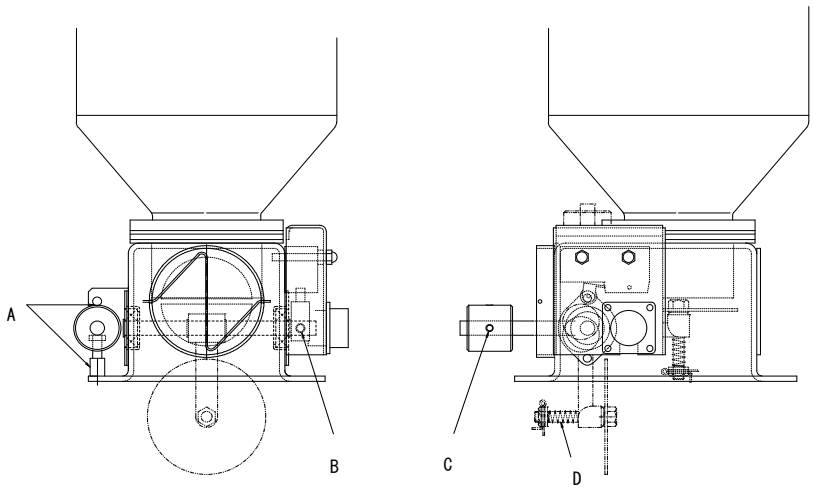
Maintenance and Item-by-Item Checking Item	Operation Content
Sensitivity adjustment of the paddle type level switch (Using the paddle type level switch)	When the level switch doesn't sense correctly by the kind of material, the sensitivity adjustment is necessary. [Adjusting method] Adjust sensitivity at the specific gravity of convey material. ① Turn the lid of the level switch to remove. ② Change the position of spring installation hole. When moving a spring to the low position, the sensitivity up. And, when moving a spring to the high position the sensitivity down. 

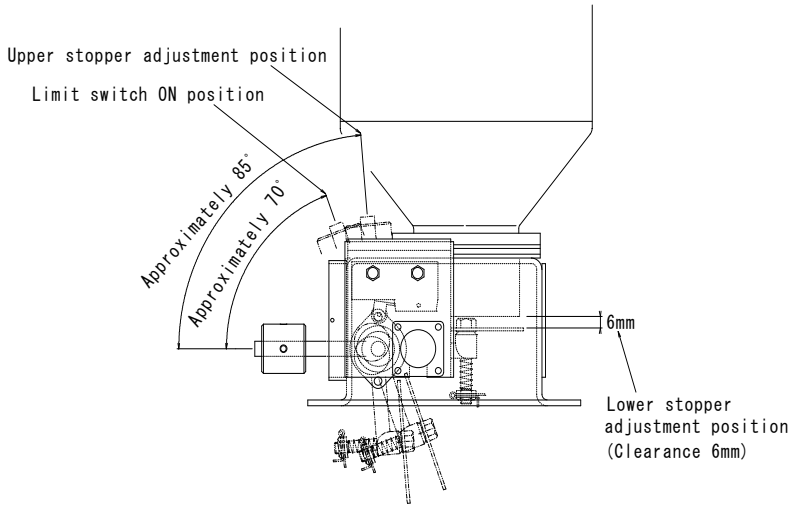
Maintenance and Item-by-Item Checking Item	Operation Content
Sensitivity Adjustment of the Level Sensor	Receiving hopper on molding machine install the level sensor. Sensitivity adjustment is done before goods shipped out of factory; However, if malfunction occurred, please follow below steps to adjust.  Adjust sensitivity when material is empty(Function lamp turns off) 1) Please set receiving hopper material empty. 2) Prepare round stick with flat or round head at both ends, diameter φ3. 3) Please observe function lamp while hold pressing OUT OFF program design button (for standard 4 seconds). When function lamp become slow flickering, please move your finger away and make sure the function lamp is turned off. 4) Please set receiving hopper level state full (with material), and when the function lamp becomes lit, adjustment finishes. **NOTE** Please never touch the program design button with sharp or keen kit to avoid damage.

<table>
<tr><th>Maintenance and Item-by-Item Checking Item</th><th>Operation Content</th></tr>
<tr><td>Adjustment of Jet Clone damper cam on upper part of the drying hopper</td><td>When the damper doesn’t open until the full signal apprears on, adjust a damper cam by following procedures.
 

<table>
<tr><th>Steps</th><th>Operation Content</th></tr>
<tr><td>1</td><td>Loosen the set screw with a hexagon rod spanner (2.5mm)</td></tr>
<tr><td>2</td><td>Adjust the cam so that limit switch may turn “ON” when damper declined to 45°~50° from the level line.</td></tr>
<tr><td>3</td><td>After adjusting the daper cam, secure it by tightening the set-screw.</td></tr>
</table></td></tr>
<tr><td>Adjustment of Jet Clone balancer on upper part of the drying hopper</td><td>Due to static electricity, occasionally, material will attached to the damper as it is shown in the photo besides, when this happens, please loosen the 2 set screws on the balancer and move backward at 5mm each time until the damper finally reach level line. When adjustment is over, please fix the set screws.
  </td></tr>
</table>

3. Monthly maintenance and inspection

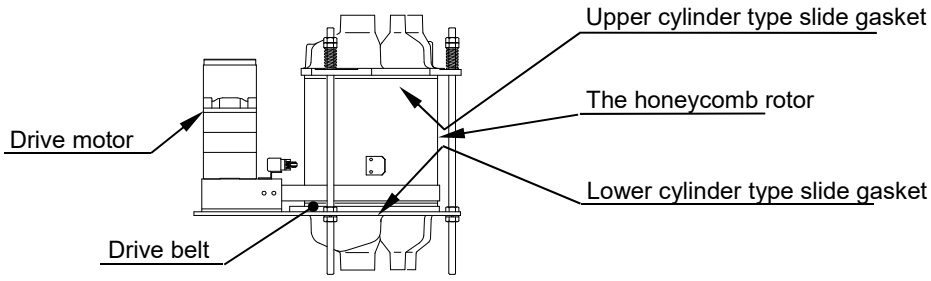
Maintenance and Item-by-Item Checking Item	Operation Content
Screwing Down of Terminal	Please confirm if the wiring connection of the electrical apparatuses inside the electric-controlled box and the device is loose, screw down if it is loose. **Caution** Be sure to perform item-by-item checking after stopping the device and cutting off the power supply.
Jet Clone inspecting	A: Please check upper and lower brake (M6) for its firmness. * If any loose be found, please refer to “Brake Adjustment Photo” on next page for re-fasten. B: Please take off blind flange and check socket head cap screw of damper cam for its firmness. Meanwhile, shut up damper and check limit switch condition. * If any loose be found, please refer to “Brake Adjustment Photo “on next page for re-fasten. C: Please check socket head cap screw that set the balancer for its firmness. * If any loose be found, please tighten it up. D: Please check spring, bolt, nut and split pin condition. * If any abnormities found, please replace them with a new one. 

Maintenance and Item-by-Item checking Item	Operation Content
Jet Clone Inspecting	 Brake Adjustment Photo
Droping and air-leaking of hose	Please check if hose removes or leaks or not. * In case of the air-leak, replace them with a new. [Example of the checking method of the air leak] In the checking method, hang a string or a thread near the hose. In the shaking condition of a string or a thread, the air leak can be confirmed.

4. Every six months maintenance and inspection

Maintenance and Item-by-Item Checking Item	Operation Content
Bolts and Screw Caps of Each Part of the Device	Please check if each bolt or screw cap is loose or not, screw down it if it is loose.
The Honeycomb Rotor	If remove destructive and non-regenerated adhereing matters of high boiling point and improper object by outside force, the honeycomb rotor shall not undergo chronicle worsening in function due to use, so long as dehumidifying air dew point keeps stable and works properly, there is no need for replacing.

Maintenance and Item-By-Item Checking Item	Operation Content
The honeycomb rotor air gasket	Air gasket on both upper and lower part of the honeycomb rotor are cylindrical type slide gasket. Please check both slide sides of the honeycomb rotor. If any air leak or abnormities occurred, we recommend that you replace the cylindrical type slide gasket. ⚠Warning The honeycomb ususlly rotates at a low speed, therefore, situation is likely to happen when it reaches to seemed stopping, please pay sufficient attention to this. Carry on inspection while honeycomb rotor is operating, please paysufficient attention, do not draw clothing and finger, etc. into drive belt and belt pulley as well as into clearance between the honeycomb rotor and other parts.
Drive motor	Check driving motor, if any abnormities such as heat, noise, vibration, etc. occurred, please make sure to replace it with a new one. ⚠Warning The honeycomb ususlly rotate at a low speed in ON/OFF. Situation is likely to happen when it reaches to seemed stopping; therefore, please pay sufficient attention to this. Carry on inspection while the honeycomb rotor is operating, please pay enough attention, do not draw clothing and finger into belt and belt pulleyas well as clearance between honeycomb rotor and other parts.
Drive belt	Check drive belt, if any crack or gear wear, please make sure to replace It. ⚠Warning Before approaching drive belt, please make sure to stop operaion and cut off power supply.



Note: Only personnels with professional knowledge and skill can perform replacement and repairing work. If inspecting result shows abnormities, please contact Matsui's after-sales department.

Chapter 7. Alarm Function

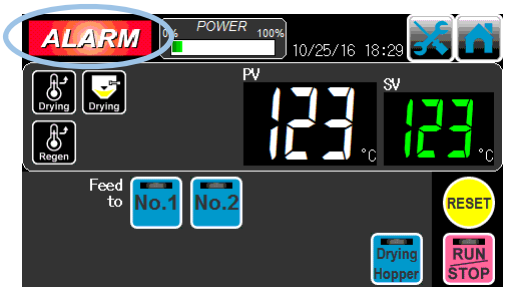
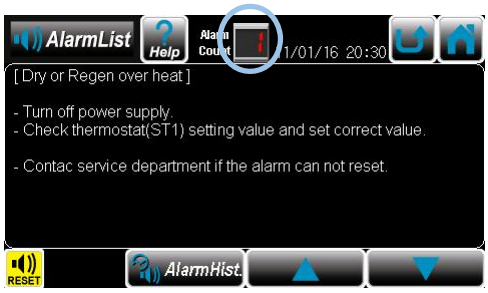
This chapter mainly explains alarm function and its cause as well as how to reset and fix in this machine.

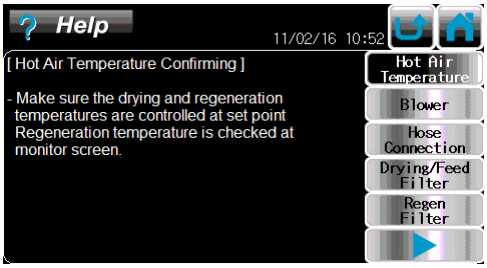
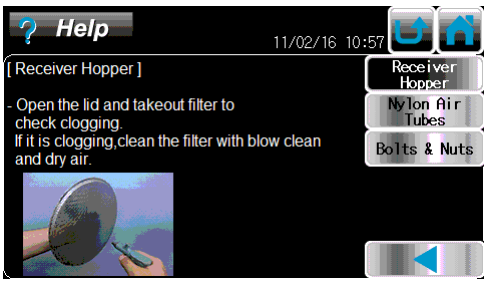
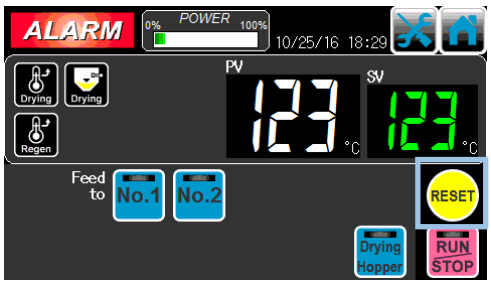
Please refer to [Chapter 2 Equipment Explanation-4.Name and function of each controller part of touch screen] concerning controller operations in different windows.

1. On alarm cause and reset

If abnormity occurs, buzzer on the operating panel rings. Meanwhile, ALARM flickers.

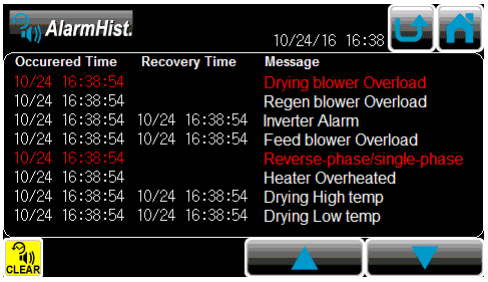
When alarm occurs, please follow below steps to confirm abnormity and identify the cause to eliminate them.

Steps	Operating Item	Operation Content / Operation Description
1	Buzzer stopping	Please press ALARM in various windows. Buzzer stops working. 
2	Confirm abnormity content	Please press ALARM in various windows to go to [Alarm List] window. Please confirm abnormity content being occurred・quantity. AlarmList window  ※If heater overheated, above window shows.

Steps	Operating Item	Operation Content / Operation Description
3	Identifying the cause and reset	(1) Please press [Help] on [AlarmList] window to go to [Help] window.  (2) To identify abnormity cause and the fix method by alternating between window labels and refer to its related help window. 
4	Eliminate the alarm	When the cause is identified and fixed up, please press RESET on the main menu.  ※Under [Inverter alarm], please set the disconnecting switch in the electric-control box OFF and eliminate the alarms. Caution Please make sure to turn disconnecting switch in electric-controlled box OFF before carrying any inspection and fixing task.To avoid any danger or accident, please do not perform any operation on this machine when the disconnecting switch is set ON.

2．Confirmation of alarm situation

If you want to confirm alarm situation happened in the past, please follow below steps to go to「Alarm Hist.」window.

Steps	Operating Item	Operation Content / Operation Description
1	How to go to AlarmList window.	You can press various windows name to go to [AlarmList] window. 
2	Confirm alarm history	Please press [AlarmHist.] on [AlarmList] window to go to [Alarm Hist.] window and see past alarms and their date and time occurred.  When alarm history reaches to more than 8 items, please press [ ][ ] to confirm alarm history which is not shown on this window.

3. Alarm list

Please follow below steps to see alarm contents, perform reset and confirm solution.

When alarm couldn't be reset, that may result in malfunction, please contact with Matsui.

Alarm display	Content	Reset / Solution	Reference
Drying blower overload	Thermal relay FR1A used with drying blower M1A tripped. Device stops operating automaticaly.	Please set main switch QS1 OFF (○) and cut off electricity power supply. Please clean filter blocking. Please press thermal relay reset button inside the electric-controlled box to reset the tripping.	Prepare supply power
Regen blower overload	Thermal relay FR1B used with regeneration blower M1B tripped. Device stops operating automatically.		
Inverter alarm	Inverter U1 is not working normally. Device stops operating automatically.	Please set main switch QS1 to OFF (○), in no less than 20 seconds, please set QS1 to ON (I), and connect power supply again.	Prepare Supply power
Feed blower overload	[MJ5-i-150~650] Motor-protective circuit-breaker QM1 used with feed blower M2 tripped. [MJ5-i-1500] Inverter U2 is not working normally. Device stops operating automatically.	Please set main switch QS1 OFF (○) and cut off electricity power supply. Please clean filter blocking. Please clean blocking inside convey piping. [MJ5-i-150~650] Please open electric-controlled box, rotate motor-protective circuit-breaker QM1 handle to ON (|).	Prepare Supply power

Alarm display	Content	Reset / Solution	Reference
Heater overheated	Thermostat ST1, ST2 attatched to dry heater EH1[EH10/EH11] or regeneration heater EH2 is inspected overheat. Device stops operating automatically. Occurs when the drying heater and regeneration heater reaches an abnormally high temperature. The unit is automatically shut off. **⚠ DANGER** The heater overheated alarm is an important alarm that detects abnormally high temperatures and automatically shuts the unit off. If improper measures such as modifying the unit to prevent the heater overheated alarm from being triggered are taken, the unit will continue to operate in a state of abnormally high temperature for a long period of time, which is extremely dangerous. Be sure to follow the correct measures as described in the column at the right. Replacement of parts should be conducted by a certified electrical engineer after turning off the power breaker.	Please operate main switch and cut off power supply. Please rotate graduated disc inside of electric-controlled box, and set thermostat ST1 a proper value. After cooling for one hour or longer, press the ⏻ switch. If the heater overheated alarm triggers again, the overheat protector is defective. Replace the regeneration overheat protector. If the heater overheated alarm triggers again even after the regeneration overheat protector is replaced, replace the drying overheat protector. Press the RUN STOP key to operate the unit. Inspect the drying blower and replace the blower if it does not rotate. Inspect the regeneration blower and replace the blower if it does not rotate. If the cause is not identified and the heater overheated alarm triggers again, an inspection by a service engineer is necessary. Contact our Service Division to request an inspection.	Prepare for operation Set overheat preventor temperature
Drying high temp	Dry temperature exceeds upper limit set value. Device stops operating automatically after cooling.	Please set upper limit of drying temperature deviation value to a proper one (initial value: 10°C/18°F) Please clean filter blocking.	Prepare for operation Set controller

Alarm display	Content	Reset / Solution	Reference
Drying low temp	Drying temperature lower than the lower limit set up value. Device keeps operating.	Please set lower limit of drying temperature deviation value to a proper one (initial value: 10°C/18°F) Please clean filter blocking.	Prepare for operation Controller setting Prepare for operation Supply power
Regen high temp	Regeneration temperature exceeds the upper limit set value. Device stops operating automatically after cooling.	Please clean filter blocking.	
Regen low temp	Regeneration temperature lower than the lower limit set value. Device keeps operating.	Please clean filter blocking.	
Drying temp sensor alarm Dry exhaust sensor alarm Regen temp sensor alarm	Temperature sensor is inspected abnormal. Deviec stops operating automatically.	Please contact Matsui.	

Alarm Display	Content	Reset / solution	Reference
Dry setting error	Drying temperature set up value can not be written in normally.	Please contact Matsui.	
Dry exhaust setting error	Dry exhaust temperature set up value can not be written in normally.		
Regen setting error	Regeneration temperature set up value can not be written in normally.		
Honeycomb rotating alarm	The absorbing cylinder to dehumidifying unit is not rotating normally.	Please contact Matsui.	
Drying hopper feed alarm	Even though feed-in convey to the drying hopper is continued, it still can not reach full level. Even though feed-out convey is continued, the level switch not yet to give out feed signal.	Please make up feed to convey side. Please repair cracked convey piping or hose, or replace them with a new one. Please fix improper connection between pipes and hoses. Please remove convey pipe and hose blocking.	
No.1 feed alarm	Even though convey to No.1 direction is continued, receiving hopper not yet to reach full level.		
No.2 feed alarm * Optional mechanism	Even though convey to No.2 direction is continued, receiving hopper not yet to reach full level.	Please adjust receiving hopper level switch. Please set the value of convey abnormity to a proper one.	
Dust cleaning	Convey frequency has amounted to that of dust collecting bin cleaned set.	Please clean dust collecting bin. Release alarm by operating [RESET] on “Home”.	

Alarm Display	Content	Reset / Solution	Reference
Temp control unit alarm	Temperature adjust not function normally	Set main switch QS1 OFF (○), in no less than 20 seconds, please set QS1 ON (|) and connect power supply again.	
PLC alarm	Device is not functioning normally.	Cut off main switch QS1 (○), in no less than 20 seconds, please set QS1 ON (I), and connect power supply again.	
PLC battery alarm	PLC inlaid battery power voltage is very low.	Make sure power supply has been connected for more than 5 minutes and set main switch QS1 OFF (○). Make sure contact and inlaid condition of the battery plug-in unit inside of the blind flange of CPU component D12 of PLC inside of the electric-controlled box is ok, if any problem, please reconnect. If necessary, please replace battery plug-in unit and replace a new battery in 5 minutes.	
Touch panel battery alarm	Inlaid battery of touch screen (Programmable display) is very low.	Make sure power supply connected for more than 1 minute, and set main switch OFF (○). Please make sure the contact and inlaid condition of battery plug-in unit in inner-side of blind flange of electric-controlled box that is of touch screen D2 on operating panel is ok. If any problem, please reconnect. If necessary, please replace battery plug-in unit and replace a new battery in one minute.	
Main power supply is shut off	Main power supply is shut off during a drying operation.	Release alarm by operating [RESET] on “Home”.	

Chapter 8 Trouble Shooting

Caution

Do not perform any inspection work until machine totally stops and set main switch QS1 OFF (○) that controls the right side of the electric-controlled box. Do not carry on any inspection until heating part temperature decreases to some extent enough not to get heat injury.

Below abnormity is recorded as below.

Since next page, reference related to mal-function part and disposal method is recorded. Please identify abnormity cause before entrust any one with repairing.

Beside, please refer to Chapter 6 “Maintenance and inspection” for filter disassembly.

Malfunction part	Contents	Note page
Convey blower	The blower does not rotate.	81
	The blower does overloaded operation and the thermal relay trips.	83
	A little air flow rate of the blower.	84
Dry blower	The blower does not rotate.	82
	The blower does overloaded operation and the thermal relay trips.	83
	A little air flow rate of the blower.	84
Regeneration blower	The blower does not rotate.	82
	The blower does overloaded operation and the thermal relay trips.	83
	A little air flow rate of the blower.	84
Drying temperature	The change of the temperature is large.	84
	The drying temperature doesn’t go up or go down.	85
Inferior drying	The resin moisture content does not go down.	85
Touch screen controller	Even though set primary side electricity power supply “ON”, touch screen controller still does not show.	86
Primary side power supply protector Breaker	Equipment power supply protector or breaker trips.	86
Overheat	The overheat alarm occurs.	86
The set value of every thermal relay model		87

The convey blower does not rotate

Searching for Abnormity	Solution	Notes
Please check that indication light HL1 is on or not.	Please turn primary power supply and main switch to ON (I). Please press preparatory switch to turn it on.	Please refer to “Chapter 4. Preparation for operation -3. Power supply”
[MJ5-i-150~650] Please open the gear of electric-controlled box and check if motor-protective circuit-breaker QM1 is ON (I) or not. Besides, please check if magnetic connection point of electromagnetism switch is fused or consumed.	If it is fused or consumed, or abnormal in make and break, please change a new contactor.	The total number of repeated make and break is 2 million times.
[MJ5-i-150~650] Please check if blower overload occurs or not.	After fixing, please open the gear of electric-controlled box and turn black knob of motor-protective circuit-breaker QM1 to ON (I).	Please refer to this chapter “Blower is overloading, thermal relay trips” to identify the cause.
[MJ5-i-1500] Please check if frequency convertor alarm occurs or not.	Please set main switch QS1 OFF (○) to remove alarm.	When inverter U2 inside of electric-controlled box does not work normally, please fix or replace it.
Please check if the limit switch of Jet Clone is on or not in the condition of discontented stuff.	When the limit switch is turned ON, please refer to “Chapter 6 Maintenance-*Jet Clone* inspecting” to adjust the limit switch.	If limit switch is not proper adjusted, though in the condition of contented stuff in Jet clone, feed-in convey yet not to stop, please pay enough attention to that.
Please check level switch and level sensor sensibility of feed-in convey side Jet Clone	Please refer to “Chapter 6. Maintenance-Sensitivity adjustment of level switch or level sensor” to adjust.	If limit switch is not proper adjusted, though in the condition of contented stuff in Jet clone, feed-in convey yet not to stop, please pay enough attention to that.

Dry blower does not rotate

Searching for Abnormity	Solution	Notes
Please check preparatory switch is on or not.	Please set primary side power and main switch QS1 to on (I). Please press preparatory switch and indicator turns on.	Please refer to “Chapter 4. Preparation for operation-3. Power supply”
Please check if [RUN STOP] on “Home” is pressed and indicator turned on or not.	Please press [RUN STOP] if it’s light is off.	Drying can be triggered in the condition of setting start timer after the set time is due.
Please make sure if blower overload alarms occurred or not.	After fixing, please open the gear of electric-controlled box and press reset button of thermal relay FR1A.	For its cause, please refer to “Blower undergoing overload, Thermal relay tripps” on this chapter.
Please check if frequency convertor alarm occurs or not.	Please set main switch QS1 OFF (○) to remove alarm.	When inverter U1 inside of electric-controlled box does not work normally, please fix or replace it.

Regeneration blower does not rotate

Searching for Abnormity	Solution	Notes
Please check if blower overload alarm occured or not.	After fixing, please open the gear of electric-controlled box and press reset button of thermal relay FR1B.	For its cause, please refer to this chapter “The blower does overloaded operation and the thermal relay trips”
Please check if inverter alarm occurred or not.	Please set main switch when QS1 OFF (○) to eliminate the alarm.	When inverter U1 inside of electric-controlled box does not work normally, please fix and replace it.

The blower does overloaded operation and the thermal relay trips		
Searching for Abnormity	Solution	Notes
Please take out the filter pot in the convey filter cover to check if there is blockage.	If there is blockage, please blow adherents on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherents, please change a new one.
Please take out the filter pot in the drying filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherents, please change a new one.
Please take off regeneratin filter and check if there is any blockage.	If there is blockage, please blow adherent on the inner side of filter away by clean dry air.	If the filter is too aging to remove the adherent, please change a new one.
Please check if connection point of contactor KM2 inside of electric-controlled box is fused or consumed.	If it does not work properly, please replace it with a new one.	The total number of repeated make and break is 2 million times.
Please check if thermal relay inside of electric-controlled box is set nominal value or not.	Please refer to "The thermal relay setting value of every model" and set thermal relay the nominal value.	Please set primary side power "OFF", before perform any operation.
Please check if inverter U1 or U2 works normally or not.	Please repair or replace it with a new one.	

A little air flow rate of the blower

Searching for Abnormity	Solution	Notes
Please take out the filter pot in the convey filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherent, please change a new one.
Please take out the filter pot in the drying filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherent, please change a new one.
Please take off regeneration filter to check if there is blockage.	If there is blockage, please blow adherent on the filter away by clean dry air.	If the filter is too aging to remove the adherent, please change a new one.
Please check if the connecting tube inside the dehumidifying device, the dehumidifying device, and the connecting tube of drying hopper are broken or not, and if there are looses on connection.	If tubes are broken, please change new tubes. If there are looses on connection, please tighten up.	If being sure of air leakage, please stop the device. Start operation again after sufficient cooling down of temperature of the heating part.

* This machine is equipped with wind volume optimization, as you can check it through [Power] on the “Home “.

The change of the dry temperature is large

Searching for Abnormity	Solution	Notes
Please take out the filter pot in the drying filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherent, please change a new one.
Please take off regeneration filter to check if there is blockage.	If there is blockage, please blow adherent on the filter away by clean dry air.	If the filter is too aging to remove the adherent, please change a new one.

When [plas] on the “Home” flickers, temperature drops, but this is normal.

The drying temperature doesn't go up or go down

Searching for Abnormity	Solution	Notes
Please check if the connect tube inside the dehumidifying device, the dehumidifying deice, and the connecting tube of drying hopper are broken or not, and if there are looses on connection.	If tubes are broken, please change new tubes, If there are looses on connection, please tighten up.	If being sure of air leakage, please stop the device. Start operation again after sufficient cooling down of the heating part.
Please check if circuit-breaker FS3 used by drying heater power inside of the electric-controlled box is cut off or not.	Please connect the power supply of circuit-breaker FS3.	Please set primary side power "OFF" before performing any operations.
Please check if wire to dry heater is broken or not.	If wire is fused or consumed, please replace it with a new one.	Please set primary side power supply "OFF" after machine stop operation. Start operation again after sufficient cooling down of the heater.

* When [plas] on the "Home" flickers, temperature drops, but that is normal.

The resin moisture content does not go down

Searching for Abnormity	Solution	Notes
Please check if circuit-breaker FS3 used by drying heater power inside of the electric-controlled box is cut off or not.	Please connect power supply of circuit-breaker FS3.	Please set primary side power "OFF" before performing any operation.
Please check if circuit-breaker FS4 used by regeneration heater power inside of the electric-controlled box is cut off or not.	Please connect power supply of No.1 feed alarm No.1 feed alarm circuit-breaker FS4.	Please set primary side power "OFF" before performing any operation.
Please take out the filter pot in the drying filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherents, please change a new one.
Please take off regeneration filter to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter away by clean dry air.	If the filter is too aging to remove the adherent, please change a new one.
Please check if the connect tube inside the dehumidifying device, the dehumidifying deice, and the connecting tube of drying hopper are broken or not, and if there are looses on connection.	If tubes are broken, please change new tubes, If there are looses on connection, please tighten up.	If being sure of air leakage, please stop the device. Start operation again after sufficient cooling down of the heating part.
Please check if wire to regeneration heater is broken or not.	If wire is fused or consumed, please replace it with a new one.	Please set main switch "OFF" after machine stops operation. Start operation again after sufficient cooling down of the heater.

Even though set primary side electricity power supply “ON”, touch screen controller still does not show anything.		
Searching for Abnormity	Solution	Notes
Please check main switch QS1 on side of the electric-controlled box is ON (|) or not.	Please set it “ON”	The total number of repeated make and break is 10 thousands times. Please replace main switch when the opening and shutting function doesn’t operate normally.
Please check if every miniature circuit-breaker FS5~8 inside of the electric-controlled box is OFF or not.	Please check conductor configuration and components inside of electric-controlled box and set them ON after that.	Please set primary side power supply “OFF” before performing any inspection.

Equipment power supply protector or breaker trips.		
Searching for Abnormity	Solution	Notes
Please check if there is short cut in the electric circuit.	Please get rid of the short cut.	To avoid any danger or accident, please do not ask anyone who do not have the sufficient electricity knowledge, therefore , please entrust Matsui with this task.

The overheat alarm occurs		
Searching for Abnormity	Solution	Notes
Please check if there is deviation on the set value of drying overheat preventor in the electric -controlled box. Set value of drying overheat preventor: drying temperature +20°C(36°F)	Please make correction if deviation exists.	To avoid electricity shock, please set primary side power supply “OFF” before inspection.
Please take out filter pot in the dry filter cover to check if there is blockage.	If there is blockage, please blow adherent on the inner side of filter pot away by clean dry air.	If the filter pot is too aging to remove the adherent, please change a new one.
Please take off regeneration filter to check if there is blockage.	If there is blockage, please blow adherent on the filter away by clean dry air.	If the filter is too aging to remove the adherent, please change a new filter pot.
Solid state socket connector V1[V10,V11] inside of the electric-controlled box has been conditioned to OUTPUT.	Solid state socket connector may not function properly. Please check and replace it with a new one if need to.	To avoid any danger or accident, please do not ask anyone who don’t have a sufficient knowledge of electricity, therefore, please entrust us with this task.

The thermal relay setting value of every model (A)

Model / Power	MJ5-i-150			MJ5-i-350		
	Drying blower FR1A	Regeneration blower FR1B	Convey blower QM1	Drying blower FR1A	Regeneration blower FR1B	Convey blower QM1
AC200V 50/60Hz	1.0 A	1.0 A	4.8/6.2 A	1.9 A	1.0 A	4.8/6.2 A
AC220V 60Hz	0.9 A	0.9 A	5.8 A	1.9 A	0.9 A	5.8 A
AC380V 50Hz	0.5 A	0.5 A	2.8 A	1.1 A	0.5 A	2.8 A
AC400V 50Hz			2.9 A			2.9 A
AC415V 50Hz			3.1 A			3.1 A
AC440V 60Hz	0.5 A	0.5 A	3.1 A	1.2 A	0.5 A	3.1 A

Model / Power	MJ5-i-650			MJ5-i-1500		
	Drying blower FR1A	Regeneration blower FR1B	Convey blower QM1	Drying blower FR1A	Regeneration blower FR1B	Convey blower U2
AC200V 50/60Hz	5.0 A	1.9 A	4.8/6.2 A	11.7 A	5.0 A	10.0 A
AC220V 60Hz	4.6 A	1.9 A	5.8 A	10.9 A	4.6 A	9.2 A
AC380V 50Hz	2.6 A	1.1 A	2.8 A	6.4 A	2.6 A	5.3 A
AC400V 50Hz			2.9 A	6.2 A	2.6 A	5.1 A
AC415V 50Hz			3.1 A	6.1 A	2.5 A	5.0 A
AC440V 60Hz	2.5 A	1.2 A	3.1 A	6.0 A	2.5 A	4.8 A

Chapter 9. Technical Manual

1. On influence of gas that occurs from the resin

The information on influence of gas that occurs from the resin

This machine sometimes can not function normally with influence of gas that occurs from the resin.
As for the resin that has this possibility, the compatible measures to suppress influence of gas becomes necessary.
There are one-pass methods and methods of installing the gas gathering unit etc. in compatible method. However, the method must be chosen according to different dry materials.

Besides, there has not yet a completely safe plan to all resins. Therefore, regular maintenance of this machine and replacement of the consumptive parts and components are necessary by various resins used.

If following situation occurs during operation, please contact us in time, because device may get the influence from gas.

1) The liquid of oily oozes from the filter box, the pipe connection part and the drying hopper.
2) There are change of color inside of filter box, or, adheres to oil substances.
3) The thin smoke occurs from the regeneration exhaust port.
4) Oil dirties the whole unit.
5) Oil adheres to the floor.

As for the resin that may involve the influence of gas, please refer to the list on next page.

●Considering the influence brought about by gas, the following table lists the resins that this machine may need to take preventive measures. (Resin with ○ marked in corresponding columns indicates that machine needs to take gas preventive measure. Resin with × mark says no measure is needed, however, possible measures may be taken according to the kind of substances mixed.)

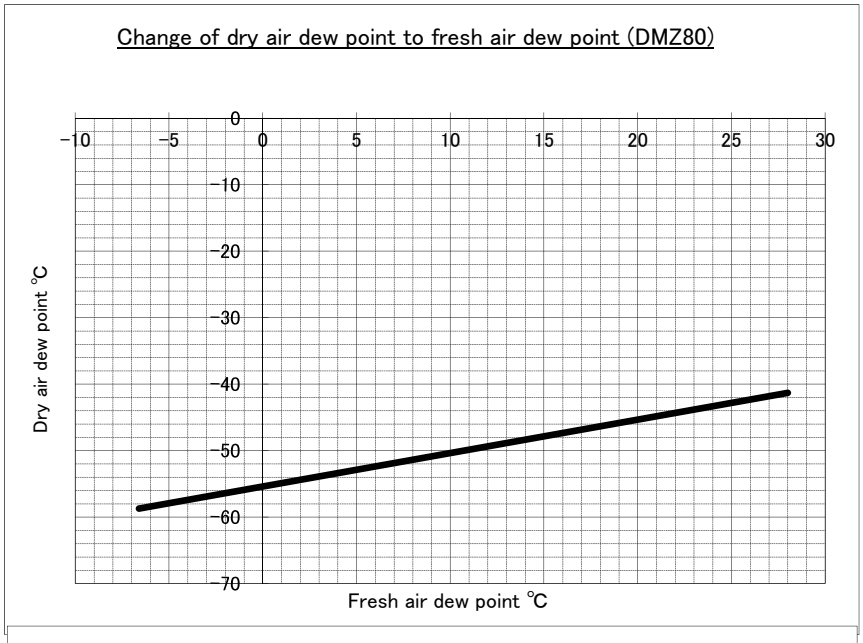
(Survey made in 2002)

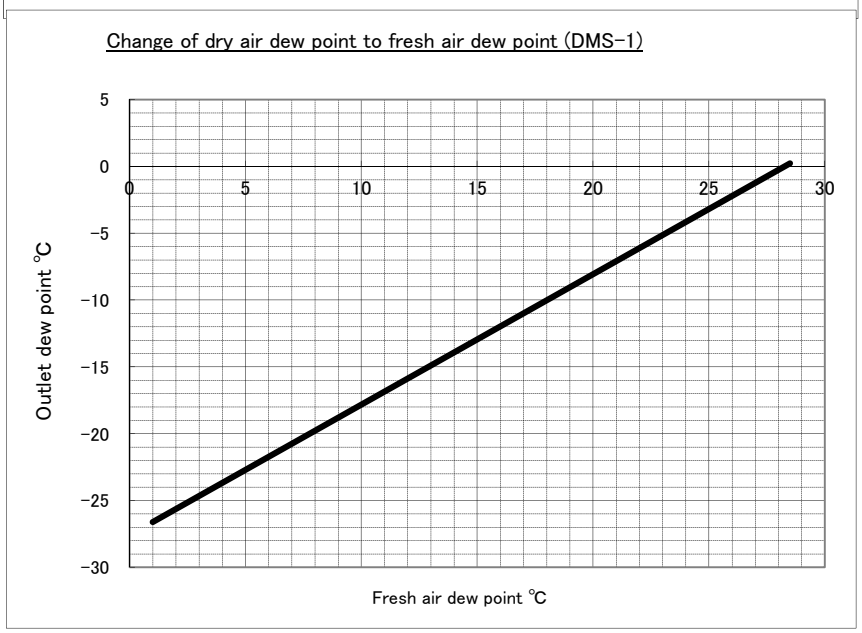
Resin Name	Necessity of using the gass compatibles	Resin Name	Necessity of the gass compatibles	Resin Name	Necessity of of using the gass compatibles
ABS	×	PAR		PPO	×
ABS+PBT		PBT	○	PPS	○
APEL		PBT+PC		PSF	
A-PET		PBT+PET		PTFE	
AS	×	PC	×	PU	○
BTP		PC+ABS		PUR	
CA		PC+PET		PVC Special grade	○
CAB		PCT+PET		SPS	
CAP		PCTFE		TPE	
CN		PC Optical grade	×	TPO	
COP		PDAP		TPX	
CP		PEEK		Reinforcement PET	○
DL		PEI		Flame resisting ABS	○
EC		PES			
EVA		PETG			
EVOH		PET Bottle grade	×		
LCP		PET Fiber grade	×		
MTPA		PFA			
PA+POM		PMMA	×		
PA+Carbon fiber		PMMA Optical	×		
PA6,66	×	POAM			
PA6,66+G	○	POLYSUL			
PA612		POM	×		
PAMXD6		PP+Fiber yarn	○		
PAN		PPE			

2. Relation between the dry air dew point and the fresh air condition

Below graphs indicate the relation between fresh air and drying air dew point (temperature).

Dry air dew point is conditioned to that of fresh air (dew point).
Please pay enough attention to worsening situation of dry air dew point resulted from the change of fresh air. The following graphs take the example of our DMZ, DMS model, demonstrating how dry air dew point is changing with that of fresh air (dew point).





3. About alarm

This chapter mainly describes how to check and test the alarms and inspection when it occurs. To avoid any danger or accident, please do not ask anyone who are not familiar with construction and not have sufficient knowledge of electricit, please entrust us with inspection and replacement task.

Alarm	Check and Test Item	Inspecting part	Confirming Item
Drying blower overload	Thermal relay of drying blower tripps.	Check thermal relay (FR1A) set up value.	Adjust to nominal current value equals to that of power supply being used.
		Drying blower (M1A)	To check if there is a breakdown.
		Suction and exhaust of drying blower(M1A)	To keep a certain wind blow passage.
Regen blower overload	Thermal relay of regeneration blower tripps.	Check thermal relay (FR1B) set up value.	Adjust to nominal current value equals to that of power supply being used.
		Regeneration blower (M1B)	To check if there is a failure.
		Suction and exhaust of regeneration blower (M1B)	To keep a certain wind blow passage.
Inverter alarm	While PlC is sending out Run signal to inverter, the latter can not return signal under operation to PLC, and this lasted for more than 5 seconds.	Operation method	Power supply connected and disconnected within a short period of time. Working power supply stopped.
		Improper power supply to inverter	Provide 3 phase power supply to inverter
		Wire connection to inverter load	Wire correctly connected to drying blower or regeneration blower.
		Connection of signal wire to inverter	Wire properly connected
		Set up of inverter	Set a proper value
Feed blower overload	Motor-protective circuit-breaker or inverter of convey blower tripps (overload or overvoltage.)	Check set up value of motor-protective circuit-breaker (QM1) of convey blower.	Adjust to nominal current value equals to that of power supply being used.
		Feed blower (M2)	To check if there is a breakdown.
		Suction and exhaust of feed blower (M2)	To keep a certain wind blow passage

Alarm	Check and Test Item	Inspecting part	Confirming Item
		Improper power supply to inverter	Provide 3 phase power supply to inverter
		Wire connection to inverter load	Wire correctly connected to drying blower or regeneration blower.
		Connection of signal wire to inverter	Wire properly connected
		Set up of inverter	Set a proper value
Heater overheat	Normal temperature signal sent out by thermostat installed in drying and regenerative heater not being checked and tested.	Temperature set up of thermostat (ST1) used by drying heater	Drying temperature +20°C below 180°C
		"Normal temperature" circuit (thermostat: ST1, ST2 and relay KA1,KA2)	Normal conductor configuration connection
		Thermostat (ST1,ST2)	Normal operation
		Relay (KA1)	Normal operation
		SSC (V1[V10,V11],V2)	Normal operation (Failure remove under ON mode)
		Drying blower (M1A), regenerative blower (M1B) and wind blow pipping	Normal wind blow (To remove piping fall off and air leakage)
Drying high temp	Drying temperature standby mode with program upper limit checking and testing upper limits.	SSC (V1[V10,V11],V2)	Normal operation (To remove failure under ON mode)
		Drying blower (M1A) and wind blow piping	Normal wind blow (To remove piping fall off and air leakage)
Drying low temp	Drying temperature standby mode with program lower limit checking and testing of lower limits.	Drying heater (EH1[EH10,EH11])	Normal operation
		Relevant conductor configuration to drying heater	Normal conductor configuration connection
		Circuit-breaker (FS3)	Normal power supply (remove of tripping and disconnection)
		Drying blower (M1A) and wind blow piping	Normal wind blow (remove of piping fall off and air leakage)
Regen high temp	Regenerative temperature standby mode with program upper limit checking and testing	SSC (V1[V10,V11],V2)	Normal operation (To remove failure under ON mode)
		Regenerative blower and wind blow piping	Normal wind blow (To remove piping fall off and air leakage)

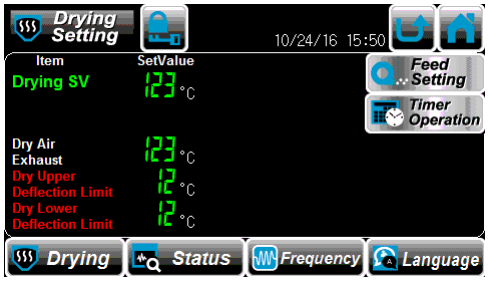
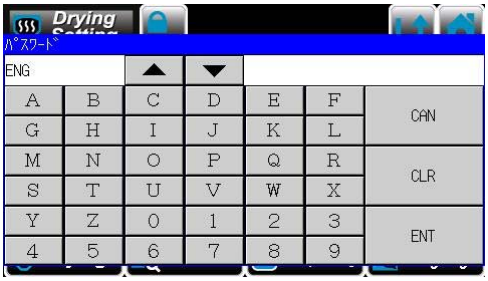
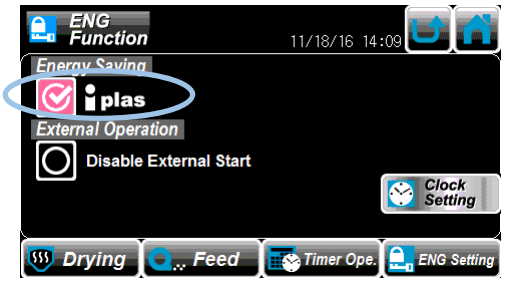
Alarm	Check and Test Item	Inspecting part	Confirming Item
Regen low temp	Regenerative temperature standby mode with program lower limit checking and testing	Regenerative heater (EH2)	Normal operation
		Relevant conductor configuration to regenerative heater	Normal conductor configuration connection
		Circuit-breaker (FS4)	Normal power supply (To remove tripping and disconnection)
		Regenerative blower (M1B) and wind blow piping	Normal wind blow (Remove of pipe fall off and air leakage)
Drying temp sensor alarm	Thermocouple disconected, improper connection, temperature check and test out of measuring range	Thermocouple (BT1, BT2, BT3)	Thermocouple is conducted. Normal connection Insulating to the earth
Exhaust temp sensor alarm			
Regen temp sensor alarm			
Dry setting error	Information exchange abnormity between devices	PLC	Normal operation
Exhaust setting error			
Regen setting error			
Honeycomb rotating alarm	Stopping mode by specific timer	The honeycomb rotor driving belt	Damage, fall off, loose
		Rotating motor (M3), driving sector	Damage, fall off, loose, breakdown.
		Limit switch for rotation check and test (SR1)	Damage, fall off, loose, breakdown.
		Connection of conductor configuration of limit switch (SR1) for rotation check and test.	Normal connection
		PLC input component (D13)	Normal operation

Alarm	Check and Test Item	Inspecting part	Confirming Item
Drying hopper feed alarm	Level empty remaining even after the set up convey frequency is done. Timer set up for level empty continuance. Level switch can not check and test material decrease.	Level switch, JC Limit switch Level switch conductor configuration Convey side Convey piping	Normal operation Normal connection Material amount, bridge building falling off, air leakage
No.1 feed alarm	Timer set up for level empty continuance.		
No.2 feed alarm * Option			
Dust cleaning	The set up cleaning frequency is due	Dust collecting bin	Clean up Alarm reset

Alarm	Check and Examine Item	Inspecting Part	Confirming Item
Temp controler alarm	Cold junction compensator is abnormal	Cold junction compensator of temperature adjust component (D14)	Connection confirm or replacement
	CPU component WDT check and test	CPU component (D12) display part of PLC	Proper component set up Reset operation on electric-controlled box or power supply reconnection ↓ nonfixable PLC component replacement
PLC alarm	I/O construction confirmed improper	Touch screen of the controller on the operating panel. CPU component (D12) display part of PLC.	Proper component set up Reset operation on electric-controlled box or power reconnection ↓ nonfixable PLC component replacement
	Cycling time redundant		
	Oder operating error		
PLC battery alarm	PLC battery is not connected.	Battery socket connector inside of the cover of CPU component (D12) of PLC	Proper connection and inlaid
	PLC battery voltage is very low.	Battery voltage inside of the cover of CPU component (D12) of PLC	Battery replacement under low voltage (Replace the battery with a new one within one minute after machine power supply has been connected for more then 1 minute.)
Touch screen battery alarm	Battery of program monitor not connected.	Battery socket connector inside of opposite side of the program monitor.	Proper connection and inlaid.
	Battery voltage of program monitor is very low.	Battery voltage inside of opposite side of program monitor	Battery replacement under low voltage (Please replace the battery with a new one within one minute after machine power supply has been connected for more than 1 minute.)
Power supply is shut off	Main power supply is shut off during a drying operation.	Operation method	Working power supply stopped.

4. Cancel the setting of [i plas]

When [iplas] on the “Home” flickers, temperature drops. The resin effect of temperature change is large, it is necessary to cancel the setting of [i plas].

Display	Operating method / Function and operation description
Temp setting 	Press on home or Drying in various windows to go to 「DryingSettiing」 window.
Temp setting  [ENG setting] Password：D000	Security level change operation Press in DryingSetting window to go to dialogue box for code input of security level change. Input code through the alphabet and number shown in the left photo. If press[ENT] and the code accepted, then switching key「ENG Setting」appear. During inputing, press [CLR] to delete all character at once by one time.
ENG Function 	Press ENG Setting on “DryingSetting” window to go to its window setup. Press [FCTN] to go to 「ENG Function」 window.
	Hold press iplas until it reverses to cancel the setting of [i plas]. Repeat hold press iplas until it reverses to be enable the setting of [i plas]

Chapter 10. Components parts list

1. MJ5-i-150 Components parts list

No,	Parts code／ Drawing number- Item No.	Parts name	Qty	Recommended replacement cycle
Machine				
1	CODE:19154	Drying filter	1	1year
2	CODE:19154	Convey filter	1	1year
3	CODE:17736	Regenerative filter	1	1year
4	CODE:20857	U type packing	2	1year
5	CODE:00427	PVC Hose W38×5m	1	1year
6	CODE:00427	PVC Hose W38×10m	1	1year
7	CODE:21276	Honeycomb Timing belt	1	1year
8	CODE:09617	Regeneration overheat setting unit	1	2year
9	CODE:15265	Dry overheat setting unit	1	3year
Electrical				
10	No,B19004 Item No.12	Contactor	1	1year
11	No,B19004 Item No.31	Battery	1	1year
12		CR2032 Lithium battery	1	3year

NOTE

1. The recommended replacement cycle is use environment, it will vary depending on usage.

2. Item 8, 9 if that is the exchange of over-temperature prevention instrument, will be the safety device parts always nearest because Please contact the Corporation Matsui SDI (back cover).

2. MJ5-i-350 Components parts list

No,	Parts code／ Drawing number- Item No.	Parts name	Qty	Recommended replacement cycle
Machine				
1	CODE:19154	Drying filter	1	1year
2	CODE:19154	Convey filter	1	1year
3	CODE:17736	Regenerative filter	1	1year
4	CODE:20857	U type packing	2	1year
5	CODE:00427	PVC Hose W38×5m	1	1year
6	CODE:00427	PVC Hose W38×10m	1	1year
7	CODE:21276	Honeycomb Timing belt	1	1year
8	CODE:09617	Regeneration overheat setting unit	1	2year
9	CODE:15265	Dry overheat setting unit	1	3year
Electrical				
10	No,B19004 Item No.12	Contactor	1	1year
11	No,B19004 Item No.31	Battery	1	1year
12		CR2032 Lithium battery	1	3year

NOTE

1. The recommended replacement cycle is use environment, it will vary depending on usage.

2. Item 8, 9 if that is the exchange of over-temperature prevention instrument, will be the safety device parts always nearest because Please contact the Corporation Matsui SDI (back cover).

3. MJ5-i-650 Components parts list

No,	Parts code／ Drawing number- Item No.	Parts name	Qty	Recommended replacement cycle
Machine				
1	CODE:19154	Drying filter	1	1year
2	CODE:19154	Convey filter	1	1year
3	CODE:00612	Regenerative filter	1	1year
4	CODE:20857	U type packing	2	1year
5	CODE:00427	PVC Hose W38×5m	1	1year
6	CODE:00427	PVC Hose W38×10m	1	1year
7	CODE:21276	Honeycomb Timing belt	1	1year
8	CODE:09617	Regeneration overheat setting unit	1	2year
9	CODE:15265	Dry overheat setting unit	1	3year
Electrical				
10	No,B19004 Item No.12	Contactor	1	1year
11	No,B19004 Item No.31	Battery	1	1year
12		CR2032 Lithium battery	1	3year

NOTE

1. The recommended replacement cycle is use environment, it will vary depending on usage.

2. Item 8, 9 if that is the exchange of over-temperature prevention instrument, will be the safety device parts always nearest because Please contact the Corporation Matsui SDI (back cover).

4. MJ5-i-1500 Components parts list

No,	Parts code／ Drawing number- Item No.	Parts name	Qty	Recommended replacement cycle
Machine				
1	CODE:19154	Drying filter	1	1year
2	CODE:19154	Convey filter	1	1year
3	CODE:00612	Regenerative filter	1	1year
4	CODE:20857	U type packing	2	1year
5	CODE:00428	PVC Hose W50×10m	1	1year
6	CODE:25135	Honeycomb Timing belt	1	1year
7	CODE:09617	Regeneration overheat setting unit	1	2year
8	CODE:15265	Dry overheat setting unit	1	3year
Electrical				
9	No,B51171 Item No.12 (B51172)	Contactor	1	1year
10	No, B51171 Item No.31	Battery	1	1year
11		CR2032 Lithium battery	1	3year

NOTE

1. The recommended replacement cycle is use environment, it will vary depending on usage.

2. Item 8, 9 if that is the exchange of over-temperature prevention instrument, will be the safety device parts always nearest because Please contact the Corporation Matsui SDI (back cover).

Chapter 11. Options

1. Alarm indicator

It will light up when alarm occurs.

All alarms can be confirmed in a comparative broad range.

2. General alarm output

General alarm output is through terminal block in the electric-controlled box (line no.: EX1, EX2).

When the alarm output is given, joint point is “ON”. (No voltage relay output, resistence load 250V 3A Max)

3. Weekly timer

Through the weekly timer set up, this dryer can carry out Automatic Start Up or Automatic Stop. You can do this by switching “ENG Setting” to “ENG Function”. If “ext start” is “On”, machine will operate according to the setting of weekly timer.

Please refer to manual for this usage.

Note

When not use external start signal of weekly timer, etc (line no.: N1, 205), please set “External Start up” on ENG Function window “OFF”

4. Dew point monitor

To show dehumidifying dew point temperature

Dew point monitor does not show anyting when drying wind blow stops in energy-saving operation.

5. Power meter

It is used to measure device power.

Please refer to operation instruction book for this usage.

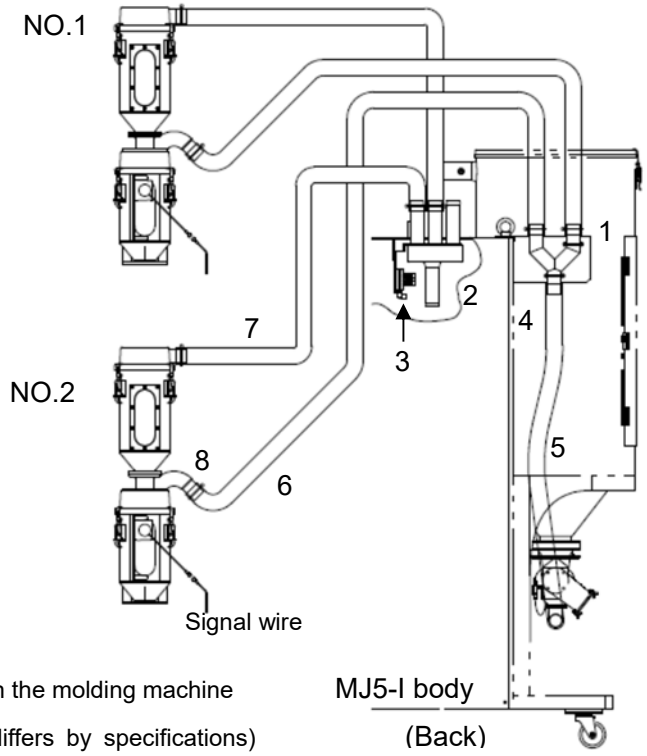
6. Leakage breaker

When electricity leakage breaker is installed, ground protection is effected.

7. Secondary convey two directions

This machine can feed two molding machines.

Please connect hoses in the way as they are shown in below drawing.

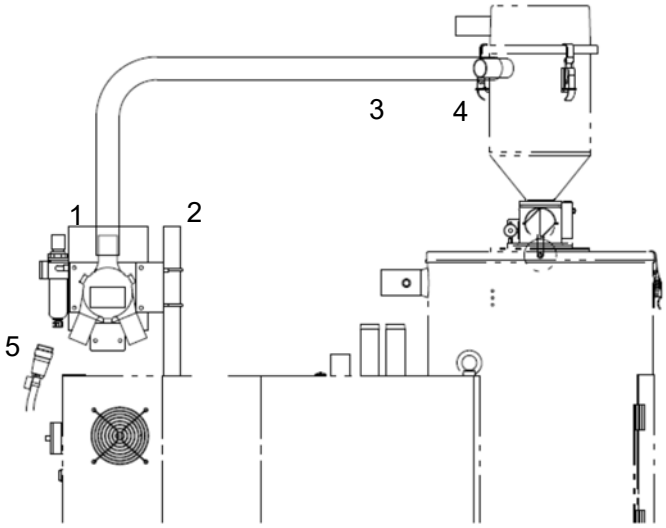


NO	Name	Factory	Model	QTY
1	2 direction branch unit	Matsui MFG	—	1 Set
2	3 direction select valve	Matsui MFG	3VN-φ38(MJ5-i-150~650) 3VN-φ63(MJ5-i-1500)	1 Set
3	Manifold electromagnetism valve	Matsui MFG	For 3VN	1
4	Piping bracket	Matsui MFG	—	1
5	PVC hose	Tigers polymer	W-38×1m(MJ5-i-150~650) W-50×1m(MJ5-i-1500)	1
6	PVC hose	Tigers polymer	W-38×5m(MJ5-i-150~650) W-50×5m(MJ5-i-1500)	1
7	GL hose	Tigers polymer	GL-φ38×5m(MJ5-i-150~650) GL-φ65×5m (MJ5-i-1500)	1
8	Hose band	General parts	AK-1045(MJ5-i-150~650) AK-1058(MJ5-i-1500)[PVC hose] AK-1073(MJ5-i-1500)[GL hose]	4 4 2

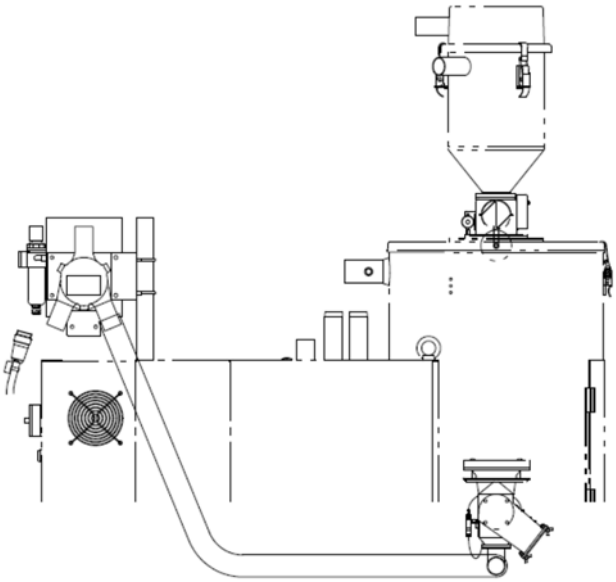
* Hose length differs by specifications

8. Connecting JET SELECTOR

Primary and seconary feeding can be carried out with JET SELECTOR (Option for sale) to make simple mixture of master material and grinding material.



JSV for feeding to receiving hopper on the dryer



JSV for feeding to the secondary convey

NO	Parts Name	Factory	Model	Qty
1	JET SELECTOR	Matsui MFG	JSV-38(MJ5-i-150~650) JSV-50(MJ5-i-1500)	1 Set
2	JSV bracket	Matsui MFG	—	1
3	PVC hose	Tigers polymer	W-38(MJ5-i-150~650) W-50(MJ5-i-1500)	1
4	Hose band	On market	AK-1045(MJ5-i-150~650) AK-1058(MJ5-i-1500)	2
5	Metal socket	Nanaboshi	NJC-204	1

9. Compatibility of different voltage

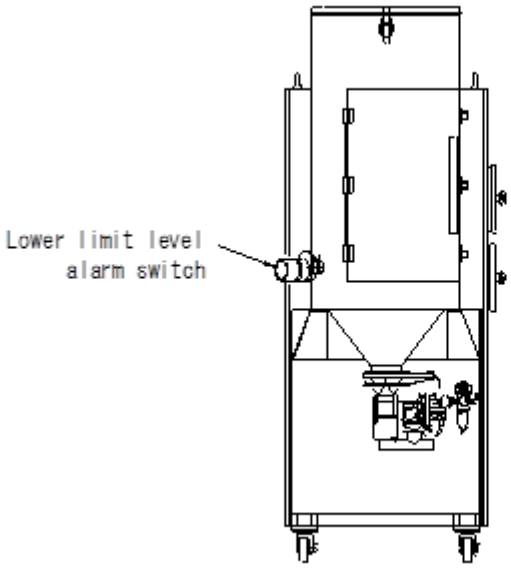
This dryer can be compatible with different voltage in the option.

(You can contact us for further advice about voltage compatibility, when purchasing or alterating the goods.)

10. Lower limit level alarm switch

With lower limit level alarm switch to be installing in the hopper, we report material low level.

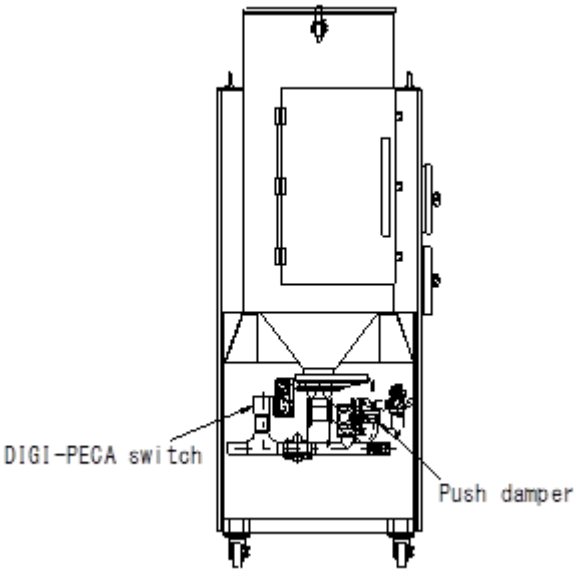
Use with the option of alarm indicator light(Rotating lamp、Laminating lamp).



	Referential remnant
MJ5-i-150	7.5L
MJ5-i-350	16L
MJ5-i-650	30L
MJ5-i-1500	105L

11. It installs DIGI-PECA switch

By installing DIGI-PECA switch (sold separately), when not using secondary conveying of visceral, too, opening and shutting control of push damper can be done.



Chapter 12. Specifications

Item NAME			MJ5-i-150	MJ5-i-350	MJ5-i-650	MJ5-i-1500
Drying hopper	L		50	100	200	500
	Heat preservation		Glass wool			
Drying fresh air dew point	* Fresh air condition: Temperature 30°C Relative humidity: 75% DP+25°C Presumed fresh air mixture: 10%		* -40 ~ -60°C (Minimum) (Drying fresh air dew point differs by working condition)			
Drying temperature	°C		60~160			70~160
			[When fresh air reaching 10°C~35°C]			
Drying blower	Model		RB20-520	RB30-520	RB40-520	RB60-520
	Motor output: kW		0.28	0.42	1.15	2.55
Drying heater	Capacity :kW	200V 50/60Hz	2.1	2.4	5.4	10.8
		220V 60Hz	2.54	2.9	6.53	13.1
		380V 50/60Hz	2.1	2.4	5.4	10.8
		400V 50/60Hz	2.32	2.66	5.97	12.0
		415V 50/60Hz	2.5	2.86	6.43	12.9
		440V 50/60Hz	2.56	2.93	5.4	10.8
Regenerative blower	Model		RB20-520		RB30-520	RB40-520
	Motor output: kW		0.28		0.42	1.15
Regenerative heater	Capacity :kW	200V 50/60Hz	1	2.1	3.1	5.8
		220V 60Hz	1.21	2.54	3.75	7.02
		380V 50/60Hz	1	2.1	3.1	5.8
		400V 50/60Hz	1.11	2.32	3.43	6.43
		415V 50/60Hz	1.2	2.5	3.69	6.9
		440V 50/60Hz	1.23	2.56	3.1	5.8
Absorption tower	Name		The honeycomb rotor			
	Model		MZC-200H20 slow-S	MZC-200H30 slow-S	MZC-250H30 slow-S	MZC-300H30 slow-S
Absorption tower motor	Motor output:kW		25			
	Reduction gear ratio		1/3600			1/1200
Drying filter	Item name		MXF-16SP-G1			
	Filter area (m^2)		0.5			0.5 x 2
Convey filter	Item name		MXF-16SP-G1			
	Filter area (m^2)		0.5			
Regenerative filter	Item name		FILEDON			
	Filter area (m^2)		0.015		0.028	

*There also can obtained the minimum dew point (-60°C) if the conditions below.

Item Name			MJ5-i-150	MJ5-i-350	MJ5-i-650	MJ5-i-1500
Compressed air	Pressure MPa		0.5			
	Flow rate L/h		10			20
	Joint size mm		φ6			
Convey	Primary convey m		10			
	Secondary convey m		5			10
Convey piping			φ38 PVC hose			φ50 PVC hose
Convey blower	Model		RB40-620			RB50-620
	Motor output kW (50/60Hz)		1.1/1.5			2.55
Dimension	W (mm)		1125	1191	1486	1910
	D (mm)		618	618	638	914
	H (mm)		2117	2203	2509	2689
Gross weight (kg)			270	290	400	690
Optional function			(1)Alarm indicator (2)General alarm output (3)Weekly timer(4)Dew point monitor (5)Power meter (6)Electricity leakage switch (7)The honeycomb rotor rotate check and test (8) Secondary convey 2 directions (9)Feeding selector JSV-38[50] (10)Compatibility of different voltage (UL/CE excluded) (11) Signal line extension (12)Power supply line extension (13) Convey hose length alteration (14)Specified color (only for outer casing) (15) Moment power failure (1Sec)			
Control	Drying temperature adjustment		PID, Heater driven by non-contact relay			
	Regenerative temperature adjustment		PID, Heater driven by non-contact relay			
	Alarm or Protect circuit		Drying and Regenerative overheat protection, Blower overload, Protection from Dry and Regeneration blower's reversal, Protection from Convey blower's reversal[MJ5-i-1500]			
	External start up input		External non-voltage contact [Standard electricity: 4.1mA (DC24V)]			
	Operating circuit voltage		AC100V , DC24V			
	Power supply capacity	200V 50/60Hz	6.8	8.5	13.9	27.2
		220V 60Hz	7.6	9.6	15.8	31.0
		380V 50/60Hz	6.9	8.6	14.0	28.6
		400V 50/60Hz	7.2	9.2	15.1	30.8
		415V 50/60Hz	7.6	9.7	15.8	32.5
		440V 50/60Hz	7.6	9.5	15.0	29.8