



OPERATION MAUNAL

Overhead Stirrer

Models : MSD-0420, MSA-0420
Manual No. :373225L002 Version :2.0



WARNING

Before using this product, read this entire Operator's Manual carefully. Users should follow all of the Operational Guidelines contained in this Manual and take all necessary safety precautions while using this product. Failure to follow these guidelines could result in potentially irreparable bodily harm and/or property damage.

Thank you for purchasing Jeio Tech's products.

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1.0 Safety

1.1 How to use the Manual

This operation manual describes the important subjects to maintain the product's functions and to use it safely. Especially, be sure to read <Safety Precaution> carefully before you use this equipment. Please keep this manual close to the equipment to use it after reading through it once. Please place it where the new user can find it easily for the safety use when you hand over or lend the equipment to others.

1.2 Symbols used in this Manual

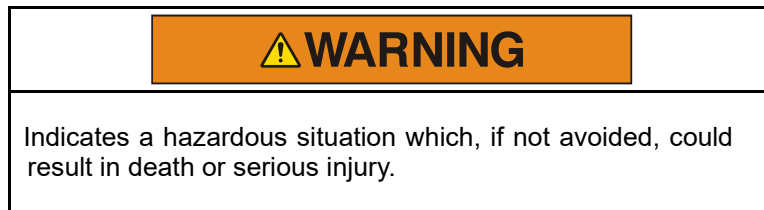
- (1) The alert marks are for safety operation and protect user and instrument from Damage.
- (2) Signal word panels are a method for calling attention to a safety messages or property damage messages and designate a degree or level of hazard seriousness.
- (3) Pay attention enough to the contents of alert marks.

Signal word panels	Uses
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
	Indicates a property damage message.

1.3 Exemption for responsibility

- (1) The claim which is out of the quality guaranteed by the manufacturer is out of manufacturer's responsibility.
- (2) The damage which is from unexpected fault or damage of user by Acts of God is out of Manufacturer's responsibility

1.4 Warning statement



Observe all warning labels.

DO NOT remove warning labels.

DO NOT move machine during the operating.

DO NOT use or keep flammable gases near the product.

DO NOT install the Product near environments where flammable gas may leak.

DO NOT use the machine near environments where explosion can occur due to organic evaporating gases.

Do not inject any liquid and inflammable things inside of product.

Check the power voltage, phase (Phase), capacity and connect it correctly.

Be sure to use the power it has been ground.

DO NOT expose the Product to direct sunlight.

DO NOT expose the Product to direct heat sources.

DO NOT install the machine in the high humidity or water leakage place.

DO NOT use the machine near environments in industrial toxic gases, smoke, metal dust.

DO NOT operate the Product when there is strange sound, smell and smoke coming from the unit.

DO NOT disassemble, fix or change the Product other than for those items described in this operating manual.

1.5 Caution statement

 CAUTION
Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

After use, be sure to turn off the main power switch and unplug the power cord after.

Do not put heavy things on the power line. Do not put the machine on the line.

Do not touch it with wet hands and put the main plug correctly.

Do not inject any Conductive thing and inflammable things inside of product.

Do not pure water or put liquid on the top of the product when cleaning.

Do not install the product near machinery generating high frequency noise

Do not sprinkle insecticide or flammable spray on the product. Use smooth cloths.

Please power off while product cleaning.



Electrical shock



Do not take the device apart deliberately.



No water.



No corrosive fluid or cleaners.



Wear goggles.



Wear a face mask.

2.0 Functional Description

2.1 Introductions

This MSD/MSA **series** usually allows to use mixture and homogenization in cosmetics manufacturing, pharmaceutical, manufacturing of paints field; property of liquid matters, fine powder and liquid with the viscosity of the material.

2.2 Features

2.2.1 Excellent performance

- (1) Best effort function intelligently manages its stirring speed to keep stirring even workload is out of its capacity. (MSD only)
- (2) During the operating, the products designed by minimize heat generation for efficient radiant heat.
- (3) Aluminum die-casting body is sturdy and efficiently emits the heat generated.
- (4) During sample viscosity change, the product provide the uniform RPM by feedback control.
- (5) We are used the standard “Modbus Protocol”. Also when user use Jeiotech exclusive S/W, Using USB port to check product condition and external control by computer. (MSD only)

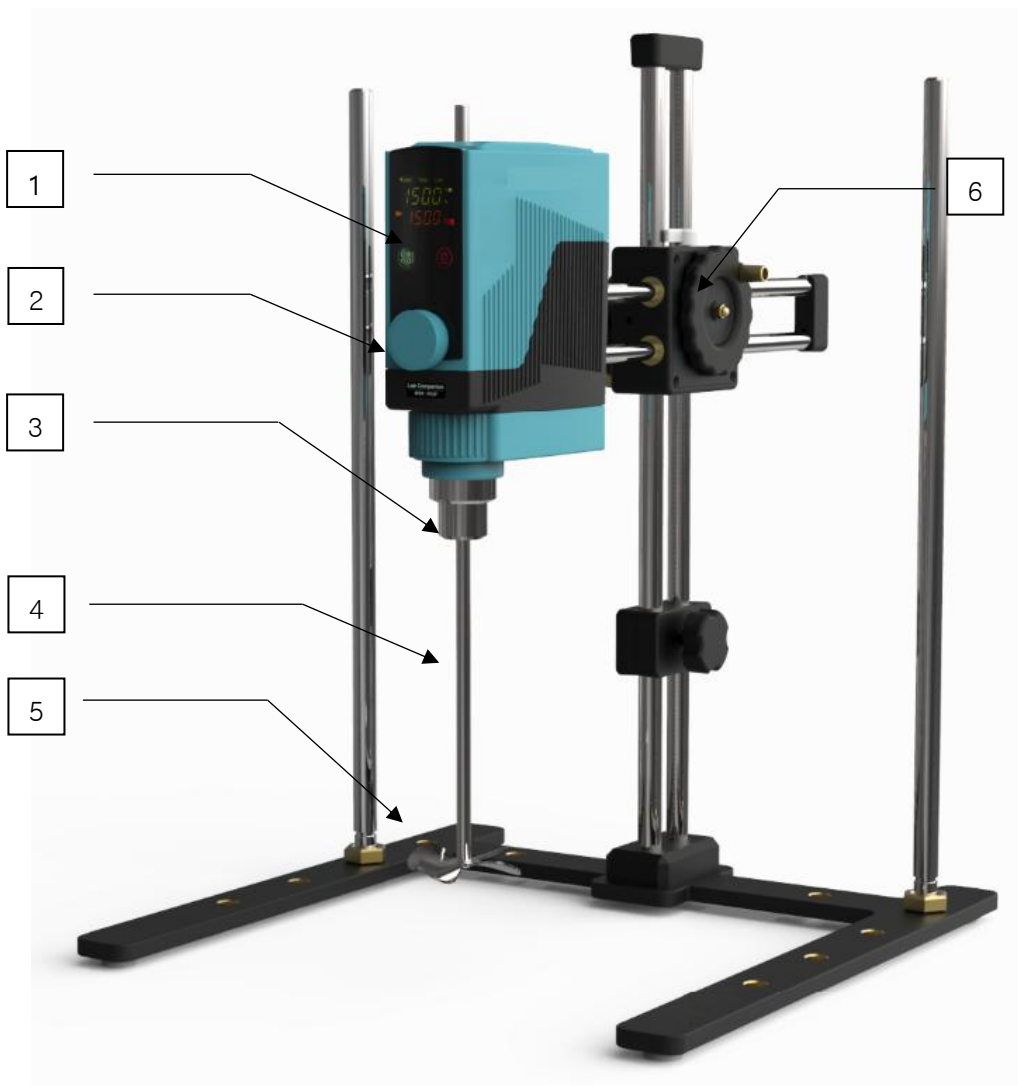
2.2.2 Safety

- (1) Motor temperature condition is indicated on display for protecting the motor. When the motor is overheated, it stops stirring operation step by step. (MSD only)
- (2) To protect the product from overheating and over current.
- (3) Smooth start function prevents spills from sample.

2.2.3 Convenience

- (1) Compact and slim head design offers convenience in the experimental setup.
- (2) Communication serial port and USB port are provided. (MSD only)
- (3) Various accessories are available such as basic stand, dial stand, impellers, and external controller. (optional)

2.3 Construction



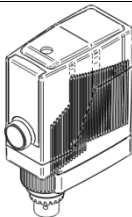
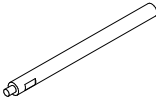
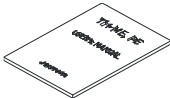
- (1) **FND Display & Controller**
: to check the operating status and condition.
- (2) **Dial Knob:** Set of rotating speed and operating.
- (3) **Chuck:** Assembling the Impeller' Shaft.
- (4) **Hollow shaft:** Hole that impeller shaft passes through.
- (5) **Impeller:** Function as adjusting fluid flow and stirring. (optional, refer to Acc. lit)
- (6) **Dial stand:** While operating equipment it can make deliberate height by using dial knob.(optional, refer to Acc. lit)

3.0 Installation

3.1 Components

After unpacking, please check the contents to ensure you have received all of the following unit components. Also, check the identification plate on the side of the unit to make sure you received the model number your ordered.

If you didn't receive one or more of the components or if the model is incorrect, contact your local Jeio Tech office, or the distributor from which the unit was purchased. Refer to 10.3 Warranty for Jeio Tech office information.

Item	Figure	Quantity	Description
Main body		1	-
Chuck handle		1	-
Attaching rod		1	-
Spanner		1	10mm/13mm
Operation Manual		1	

3.2 Preparing before installation

3.2.1 Environmental setting

The unit can be operated properly under the following environmental conditions for a long time running without any problem.



No direct sunlight.



Please keep Ambient temperature 5°C~40°C

(The Optimum temperature is 25 °C)



Relative humidity not to exceed 80%



Altitude not to exceed 2000m (6,562 feet)

3.2.2 Space requirements

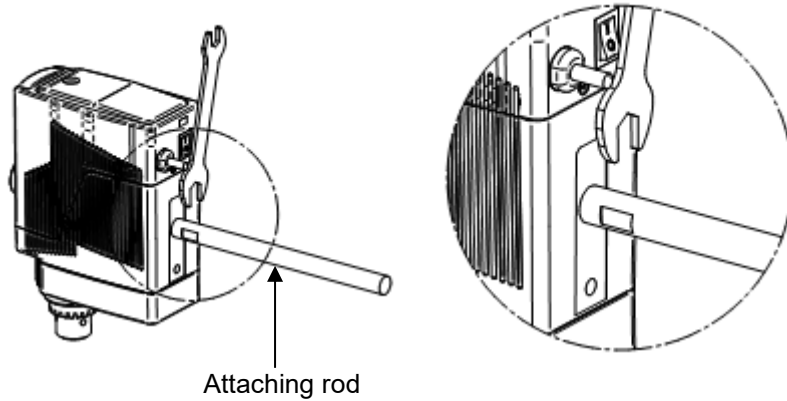
- (1) Please install on the sturdy surface laboratory which is set safety facility and make sure horizontal align correctly.
- (2) When you install it, minimum space (over than 30 Cm in usual) required from other objects.
- (3) Do not use the Product near environments where flammable gas may leak.
- (4) Do not use the Product near machinery generating high frequency noise.
- (5) Do not use the Product in short-circuit, leakage, and flooding place.
- (6) Do not use Product in environments that contain industrial oil smoke and metallic dust.

WARNING

Avoid use in places where the heat source or direct sunlight. It can cause abnormal equipment operation or performance degradation.

3.3 Installation of main body

3.3.1 Attaching rod connection



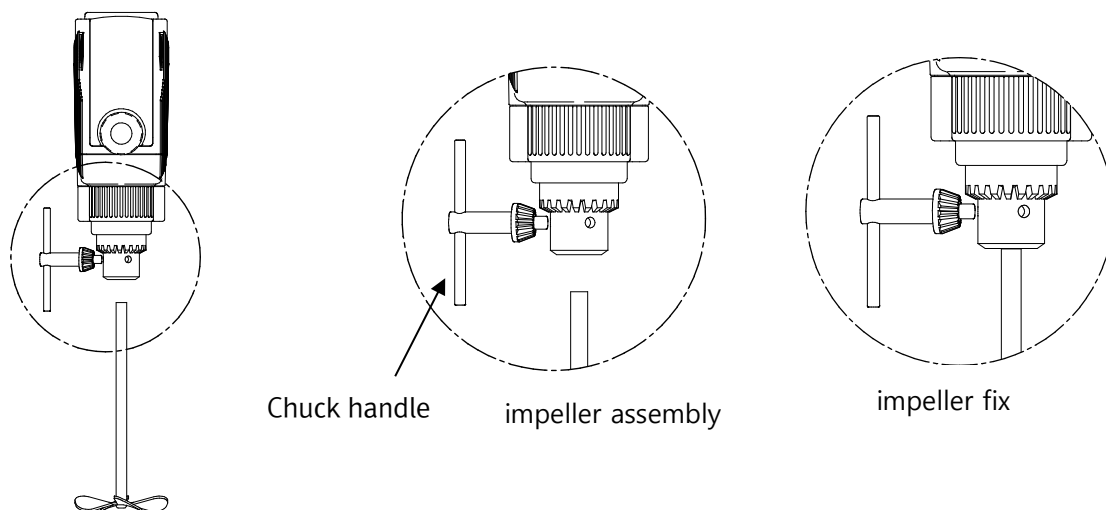
As above, one basic shaft must be turned on the right and fixed it tight by using spanner 13mm. In case of dial stand use, it must be connected to the specialized attaching rod.

3.3.2 Fixing it to stand

Fix the the joint port of attaching rod and the main body by clamp at the proper position.
(Refer to 8.0 Accessories)

3.3.3 Assembling the impeller

As the figure, loosen the jaw of the chuck counterclockwise by using chuck handle.
As the figure, insert the impeller into the chuck, and turn it up clockwise until it's fixed tight by using chuck handle



CAUTION

Imbalance of the impeller and the chuck and in particular the stirring tools can lead to uncontrolled resonant vibration behavior of the unit and the whole assembly. Take care to ensure that the center of the impeller is positioned properly to the chuck.

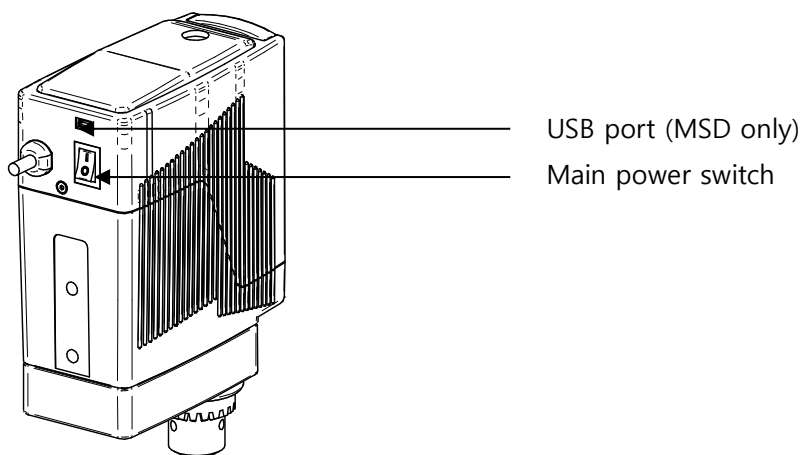
NOTICE

There are 3 holes in the chuck. As above, turn it up in 3 holes turns in the chuck until locking when assembling.

3.4 Power connection

Connect the electric power to the unit according to the following process.

- (1) Turn off the switch before power supply.
- (2) Connect DC plug of the power cord on the socket located on the back side of the unit.
- (3) Connect the power cord to the consent..



WARNING



Electrical Shock Hazard.

- Check to make sure that the correct line voltage, phase and capacity correspond to them specified on the identification plate.
 - Do not use the branch socket, extension tap. It cause of cable damager, fire by overcurrent.
 - Incorrect power line will cause the product damage or personal injury.
 - Do not touch the unit or plug with wet hands.
 - Make sure the power should be connect second grade ground
-

4.0 Operation

This machine is not affected by viscosity of fluid, maintaining consistent RPM in the rated current while stirring.

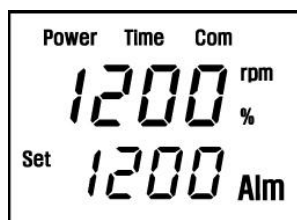
4.1 MSD-0420

4.1.1 Touch panel & Dial knob

Using the dial knob to operate the product rotating speed (RPM). Also user can check easily product condition. (Motor output power value or temperature, product operating time)



(1) **FND Display:** Setting and status of control can be verified.



- A. **Power:** Display output of motor
- B. **Time:** Display elapsed time from starting stirring
- C. **Com:** Display status of communication interface
- D. **Set:** Display set RPM
- E. **rpm:** Display a stirring unit

F. %: Display an output unit of motor

G. Alm: Display status of warning

(2) **Mode Button**



To verify RPM, Temperature, Power, and elapsed time during stirring.

(3) **Lock Button**



If this button is touched, all functions does not work except stop function of dial.

(4) **Dial Knob**

RPM can be set with dial.

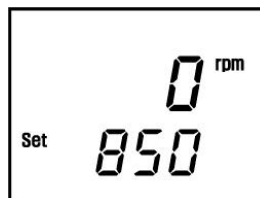
Pause stirring : Press the dial during stirring. To stir again during pause : Press the dial.

4.1.2 Operation

STEP 1: Press main switch to ON. [3.4 Refer to main connection]

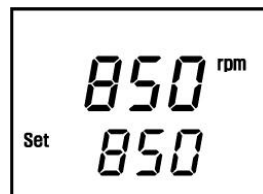


[Booting (displayed Version)]



[Stand by]

STEP 2: Press the dial knob 1 time, product will start to operate, steadily.
To set the user operate RPM to rotating the dial knob..



Operating rpm

Setting rpm

STEP 3: Check display whether RPM reaches set point or not.

4.1.3 Stop operating

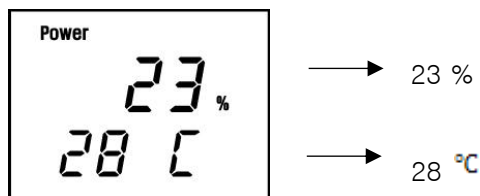
Press dial knob 1 time again, during operation.

4.1.4 Verification of Power, temperature, and elapsed time

STEP 1: To verify Power and Temperature

Press Mode button at RPM display

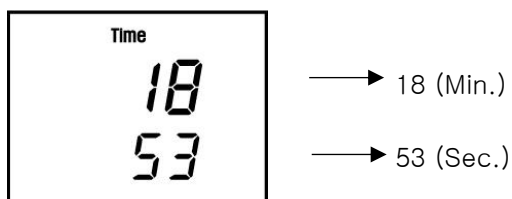
Power displays on the left top. And the value of power displays by % indication.
Temperature displays the below line by °C indication.



STEP 2: To verify elapsed time

Press Mode button at Power and temperature display.
Or press Mode button 2 times at RPM display.

- Minute of elapsed time : On the top (Max. to 9999)
- Second of elapsed time : On the bottom (Max. to 59)



NOTICE

The display returns to RPM after 10 seconds lapse.

4.1.5 Limit of setting and see pause display

STEP 1: Press Lock button around 3 second.

Color of Lock button will be changed in Red and blinks condition.

NOTICE

If you press Lock button at Power, Temperature, or elapsed time display, display does not return to RPM display and either Power and Temperature or elapsed time keeps displaying.

STEP 2: To release Lock function.

- Press and hold Lock button for 3 seconds

NOTICE

Functions with dial and touch button stops once Lock function is set. But, stirring can pause by pressing dial knob.

CAUTION

Please stop the unit and decrease speed if sample splashes or the unit vibrates.

WARNING

Do not stir explosive sample.

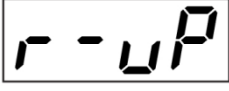
Electric reaction could be happened between stirring sample and shaft of output. The unit should be used in experiment not to occur any surplus energy during stirring or other ways.

4.1.6 User configuration

Set the product configuration

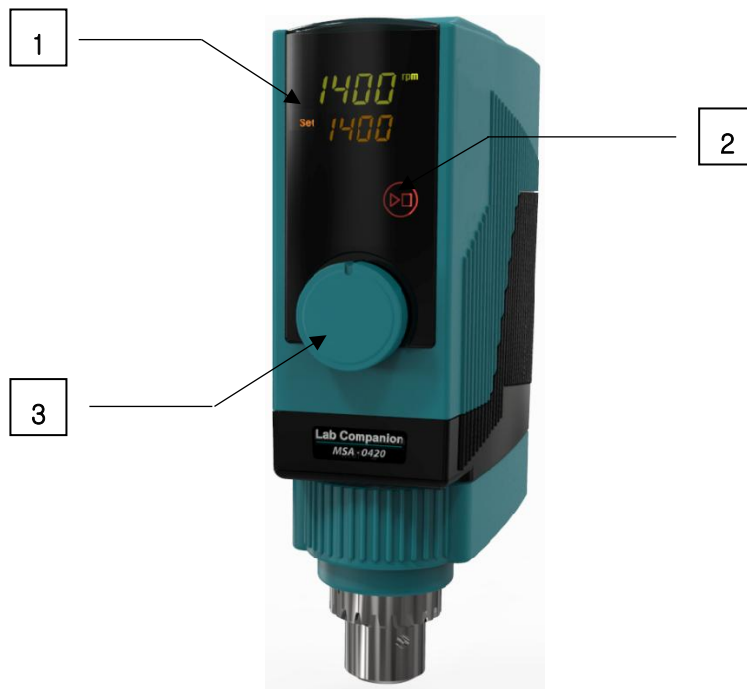
Turn power switch on during press the dial knob.

When user see the “CONF USER” on screen. Press knob 1 time again, you can chang the configuration..

	Display	Meaning	Descriptions
1		SV resolution	In case of shaking speed setting, increased or decreased by setting unit • 1~100, default : 5
2		Sound	Select of system sound mute • ON, OFF, default : 5
3		Ramp up	Shaking increase speed control value • 1~10, default : 5
4		Ramp down	Shaking decrease speed control value • 1~10, default : 5
5		Direction	Select of rotation direction • CW(Clockwise rotation), CCW(Counter clock wise) , default : CW

4.2 MSA-0420

4.2.1 Controller – Name and function



(1) FND Display: Setting and status of control can be verified.



- A. Set : Display Set rpm
- B. rpm: Display present rpm
- C. Alm: Display the warning status

(2) Product start / stop and alarm button

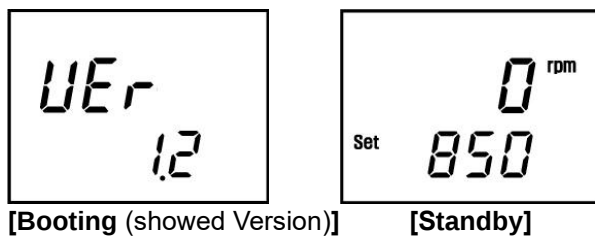
- ▶◻ Stop and restart stirring.
- It blinks when overload occurs.

(3) Dial Knob

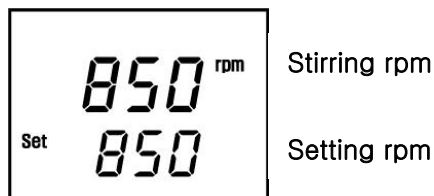
RPM can be set with dial. (270°)

4.2.2 Operation and stop

STEP1: Press main switch to ON. [Refer to 3.4 power connection]



STEP 2: Press the operation and stop button, product will operate steadily.
Adjust dial to set RPM.



STEP3: If you want to stop the product please press the operation and stop button.

CAUTION

Stop stirring and decrease RPM for the following cases;

- Splashes occurs due to high speed.
 - Equipment does not work smoothly.
 - Equipment vibrates too much.
-

5.0 Safety function

Generally motor raise overload problem as following cases;

- Long term stirring of a sample with high viscosity that exceeds stirring capacity.
- Stirring an excess of proper capacity.
- Rapid increase of viscosity of sample during stirring.

Proper visible warning and indication with audible warning sound are applied to the unit to protect from damage of unit caused by overheated motor due to overload.MSD-0420

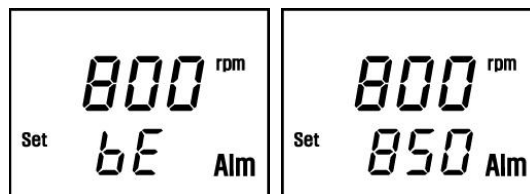
5.1 MSD-0420

5.1.1 Overload protection

There are 2 steps of control when system detects overload.

STEP1: Over load(visible warning) blinks when overload occurs.

The unit can be operated while finding the most proper RPM. (Alarm blinking - on going)



STEP2: under the condition of step 2, in case of over the limit available control range, warning sound and lock button blinks and the equipment operating is stopped. Alarm can be canceled by pushing the operating button



5.1.2 Overheating Protection

Visible warning blinks when motor is overheated due to overload. Operating also stopped immediately. The unit should be operated after getting rid of reason of overheat and chilling for a while. Without enough chilling and cooling, Protect Function can occur again and machine can be turned off.

5.1.3 Overheating occur

If the overheat occur, the lock button will blinking while warning sound while screen noted on Stop sign(otp stop: over temperature protection stop). It can be deactivated by pushing the operating button.



5.1.4 Overheat protect function activate/deactivate

Turn off the switch make the machine cool for a while and turning on again. If cooling is not proceeded enough protect function can be activate again. (turning off) take a proper time to give some rest to machine.

5.2 MSA-0420

5.2.1 Overload protection

With warning sound, button blinks and display noted stop sign on the screen like (ocp stop: over current protection stop) Alarm can be deactivated by pushing the operating button.



5.2.2 Overheat protection

Continually working with overloaded condition, overheat can occur. With warning sound, button blinks and display noted stop sign on the screen like (otp stop: over temperature protection stop). Alarm can be deactivated by pushing the operating button.



Turn off the machine and make it cool for a while. And re-operating. When the cooling time is not enough protect function can be re-activate.

NOTICE

- When protect function occur, turn off the machine and get proper time for cooling. If the time is not enough, the function can be activated again.
 - When the alarm sound occur, turn off the machine and plug out. Get proper time for cooling.
-

WARNING

Do not stir explosive sample.

Electric reaction could be happened between stirring sample and shaft of output. The unit should be used in experiment not to occur any surplus energy during stirring or other ways.

CAUTION

- The unit is designed for stirring or mixing sample with low or medium viscosity. Equipment and impellers must be chosen in consideration of viscosity and stirring capacity. And equipment should be fixed with suitable stand for proper usage..
 - Container could be broken or relocated if accessories and container are fixed and located firmly.
 - Check out the equipment and accessories whenever you use. Do not use any equipment and accessories with faulty.
-

6.0 Maintenance

6.1 Inspection cycle

Classification	Inspection cycle	
	Daily	Weekly
Inspect power cord connection at unit and receptacle.	•	
Inspect power cord for wear, cracks or cuts	•	
Stand and accessories cleaning		•
Surface cleaning on the unit		•
Controller function		•
Motor on/off checking	•	
Motor speed checking	•	
Attachment assembly checking	•	

6.2 Cleaning of product

The unit maintains the best condition and operates with full efficiency and extend the life expectancy, only satisfied with periodical cleaning. We suggest that checking cleanliness every day, cleaning the chamber once a week, cleaning the surface of the unit once a month. And immediate cleaning is required when the unit is contaminated.

6.2.1 Cleaning the Unit

Unplug the power cord and clean it with soft and dry towel. Rub the unremoved part, using alcohol solvent (methanol, ethanol) with towel.

CAUTION

- Do not immerse the unit in water to clean up
-
- Please take notice not to get damage with parts inside or system
- Please take notice that main body is not being contact from Strong acids or strong alkalis or acetone, benzene, phenol, toluene, chloroform, cresol, affiliate acetic acid, affiliate chlorine.
- Do not use detergent which includes chlorine, abrasive, ammonia
- Please unplug when it is not used.
- Please move it after unplug.

6.2.2 Accessories

Keep the unit clean always by cleaning the unit with a dry soft cloth before and after using.

6.3 Storage

In case of not using long time

- (1) Unplug the unit from the main power.
- (2) Clean the unit with a soft cloth neatly.
- (3) Store in a dry place after packing

7.0 Trouble shooting

Check the below statement and take action according to the instruction.
If the unindicated problems arise or you cannot solve the problem with the instruction

7.1 Power

Trouble	Causes	Solution
The unit does not turn on	Incorrect electric power	Compare power source and voltage on the ID plate and make sure they are the same. ID plate is found on the back of unit.
	Power failure or circuit breaker shuts down	Find out the causes of power failure and recovery. also find the cause of power failure and recovery when break circuit is down
	Main plug not seated properly.	Check the electrical cord connection at the unit to ensure it is fully seated.
	Socket / plug / main power line might be cut	If the socket / plug / main power line are cut, request service.
	PCB has damaged by reagent	Request service.
Room circuit breaker trips often when the unit is turned on or running	Too many plugs connect at the same time	- Check the circuit breaker size along with the voltage and current supplied to it. - Check that several similar units are inserted together, if so you should not use overly.
	Internal circuit fault	Asking after sales service
It does not work even though Power is supplied	Working Overheat protection system	Restart after cooling.
	Internal circuit fault	Asking after sales service

7.2 Malfunction on operation

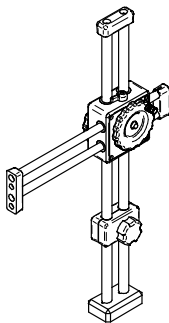
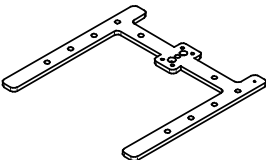
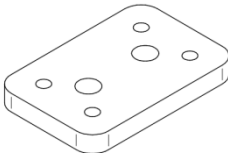
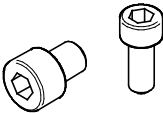
Trouble	Causes	Solution
Solution cannot be mixed well	Too much solution	Reduce the volume or rpm speed up
	Solutio in flask is high density	Use product which has a motor suitable for high density solution
Operation stop	Overheat protection system is on	Unplug, cool the unit and restart
Mechanical noise in the unit	Offcenter – Rotation support is fault	Request service
Dial knob does not work properly	Knob fault	- Disassemble, assemble the knob and restart - Request service
Touch screen error	'Button Lock' status (MSD only)	Check if 'Lock' is on
	Damage by chemicals or overheat	Request service
bLdC error	Communication failure between the display board and the BLDC board	Request service

8.0 Accessories

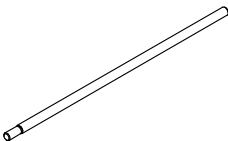
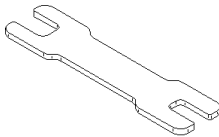
8.1 Advanced dial stand

- (1) It is made of Cast Iron and can be adjusted the height slightly along with 2 axes installed on the solid frame using dial knob.
- (2) The position can be adjusted slightly by dial knob and fixed with small stopper tightly while using it.
- (3) The stand bar for constructing can be fixed firmly on the Main Frame processed several supports with M14-tap. (Optional)

8.1.1 Parts for advanced dial stand

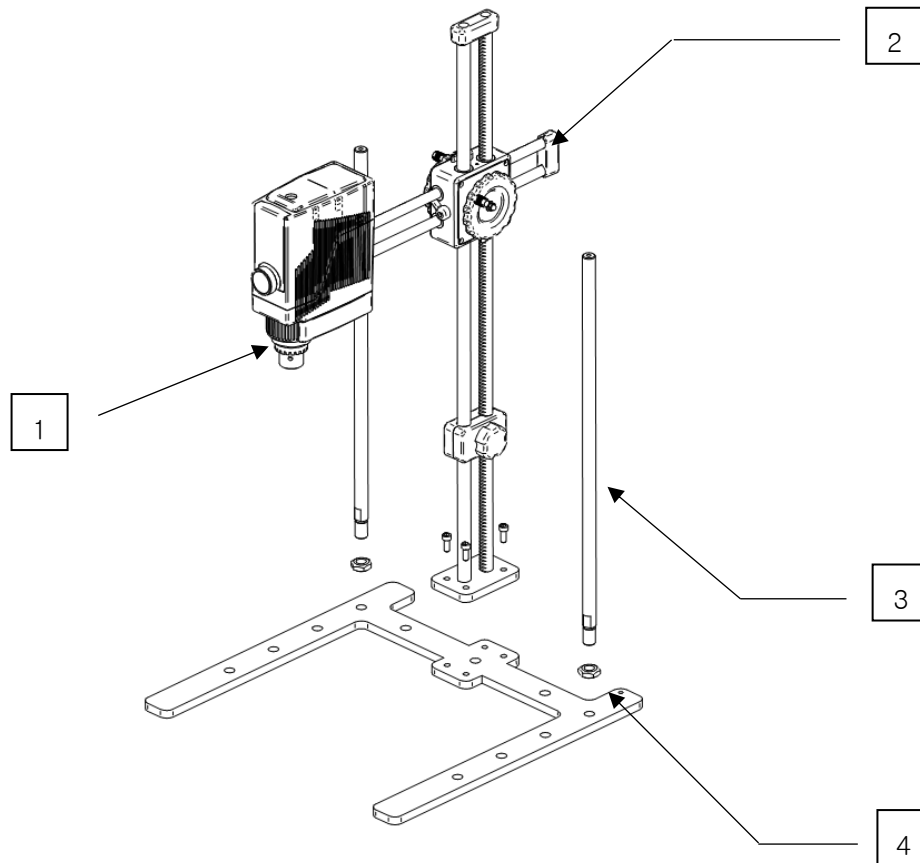
Dial stand	Base plate	Base block
		
Wrench bolt	Wrench	
 M8 x 10 2ea M6 x 15 4ea	 5mm 6mm	

8.1.2 Optional parts for advanced dial stand

Support-500mm	Bolt	Wrench
 Ø15, Ø18, Ø20 (option)	 M6	 13mm/10mm

8.1.3 Assembly of advanced dial stand and main unit

8.1.3.1 Deal drawing



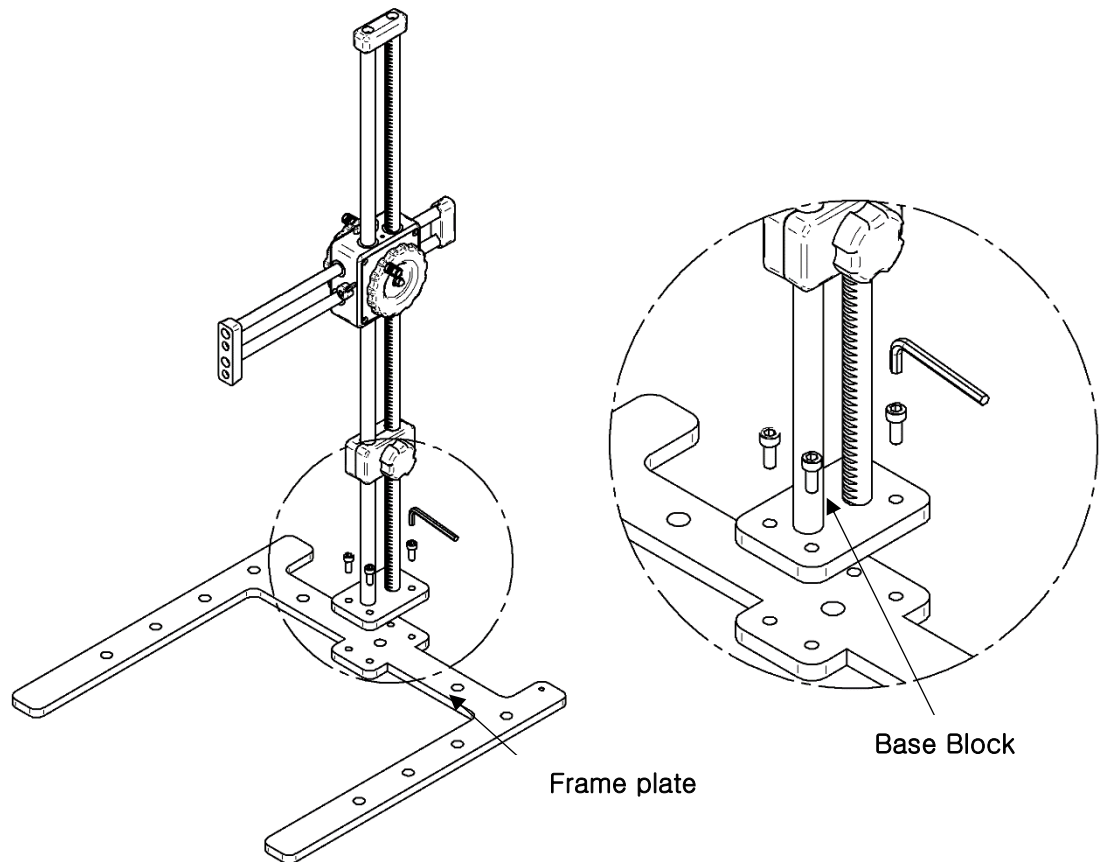
- (1) Main unit (Head)
- (2) Dial stand
- (3) Support (500mm-Optional)
- (4) Base plate

[Figure 8-1]

⚠ CAUTION

Please install the unit on a flat, dry and fireproof floor.

8.1.3.2 Assembly of Dian stand



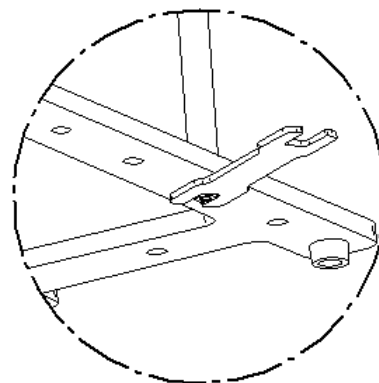
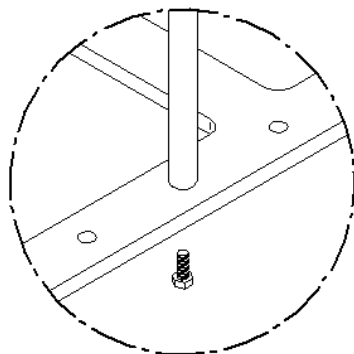
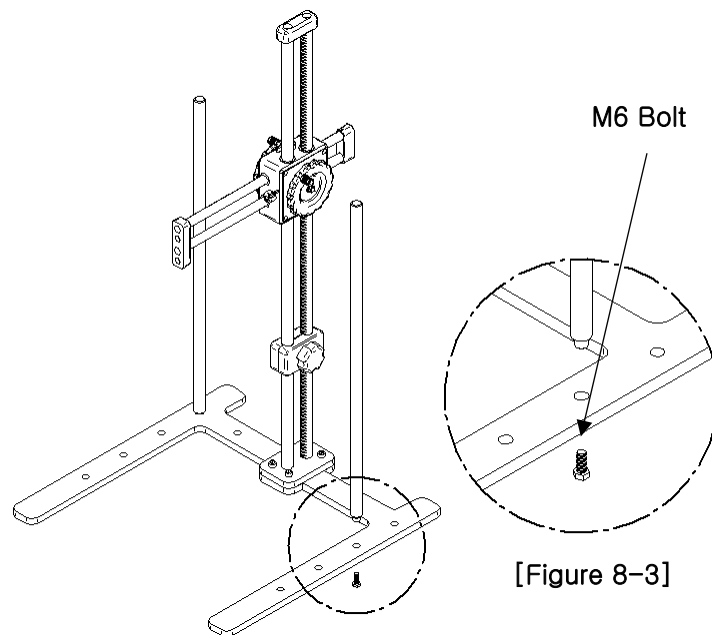
[Figure 8-2]

- (1) Position the Base block and base plate of dial stand as shown [figure 8-2]
- (2) Assemble them with 5mm wrench and 4ea wrench bolts (M6X15)

⚠ CAUTION

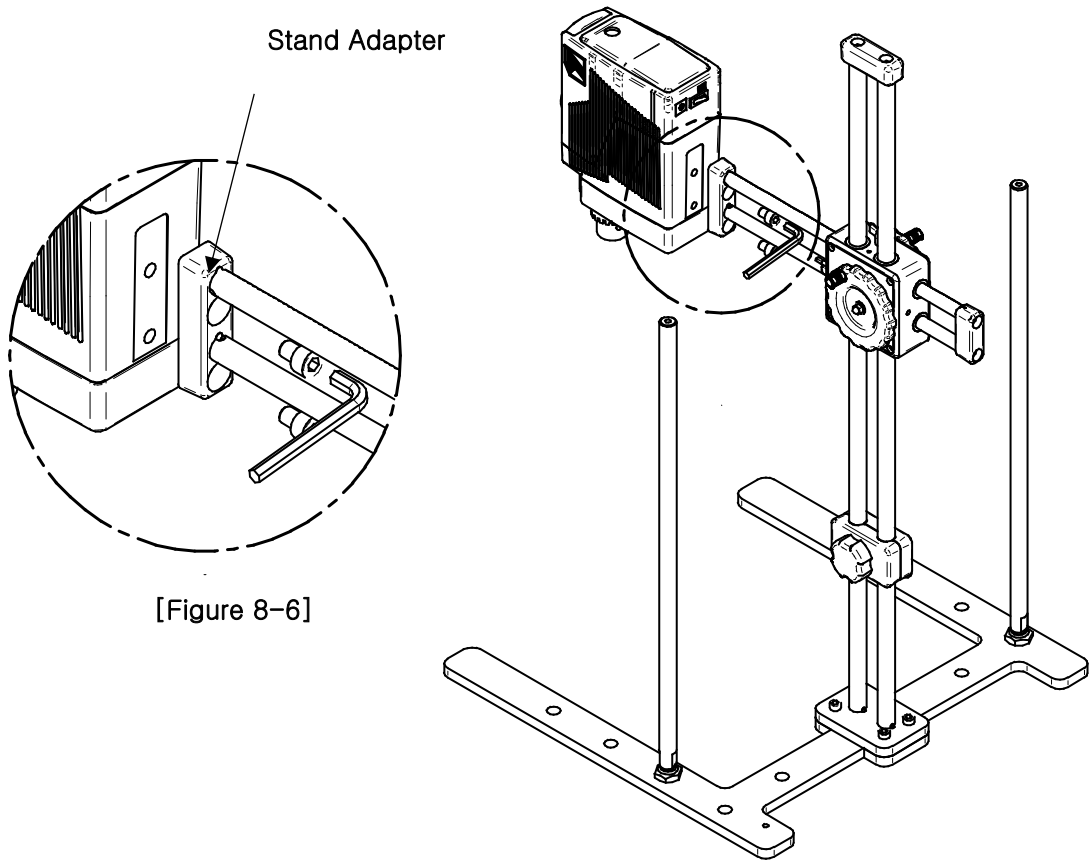
When you tighten the wrench bolt (M6X15) up, please make sure that 4 bolts are tightened equally. Vibration may occur if the assembling is unbalanced.

8.1.3.3 Assembly of support (500mm-Optional)



- (1) Position M6 Bolt under the base plate and support on the base plate as shown [Figure 8-3]
- (2) Assemble them by bolting M6 Bolt as shown [Figure 8-4]
- (3) Tighten M6 Bolt again with 10mm spanner so the base plate and support can be fixed well as shown [Figure 8-5]
(Please be careful not to tip down the dial stand when you bolt them by spanner)

8.1.3.4 Assembly of Main body



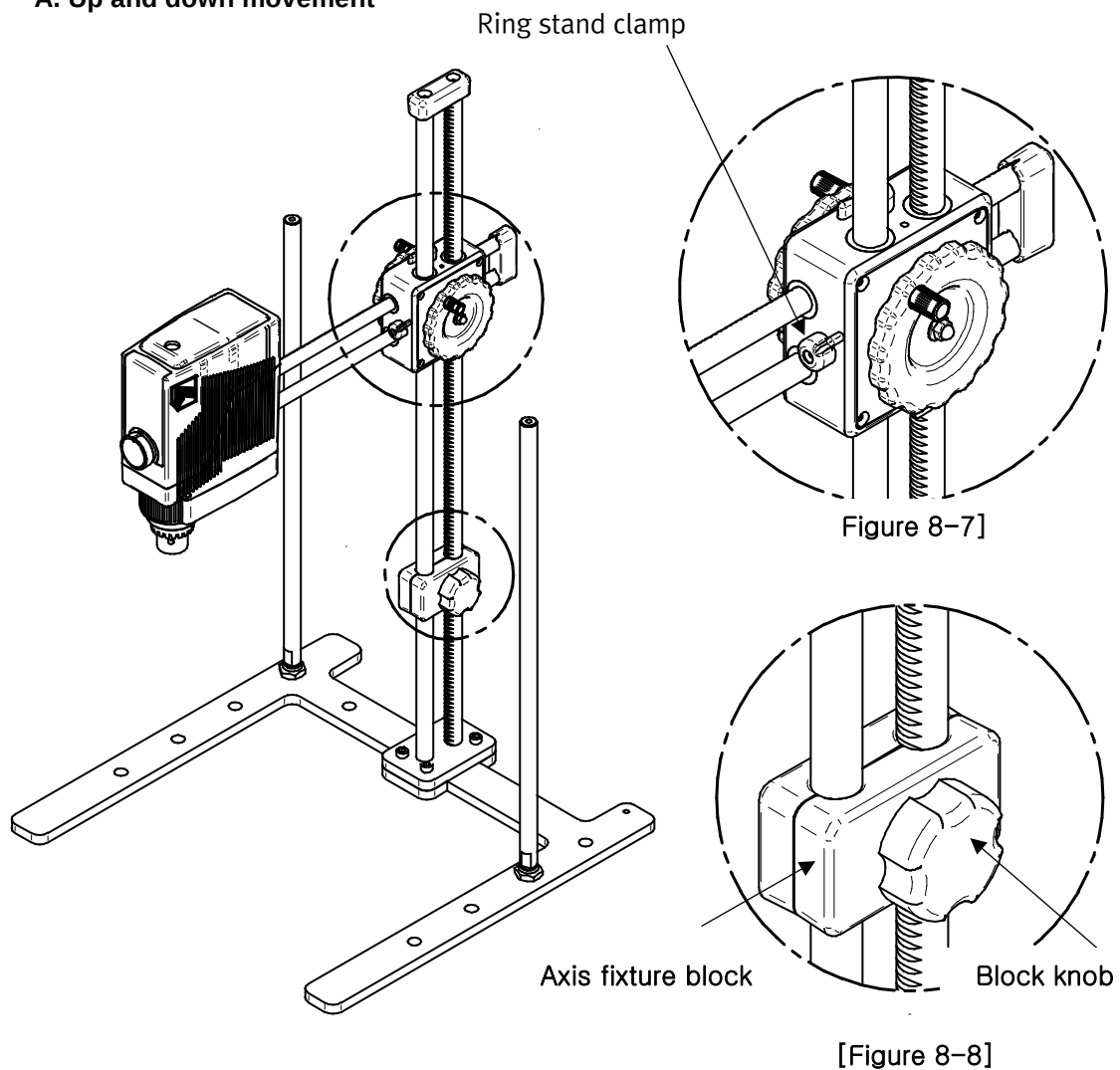
- (1) Using a 6 mm wrench handle, insert bolts (M8X10) in the stand adapter and match the stand adapter holes with the (2) holes located at the backside of the head as shown in [Figure 8-6] located above.

CAUTION

Safe operation can be guaranteed only with accessories supplied by Jeio Tech.
Please unplug power before you mount accessories.

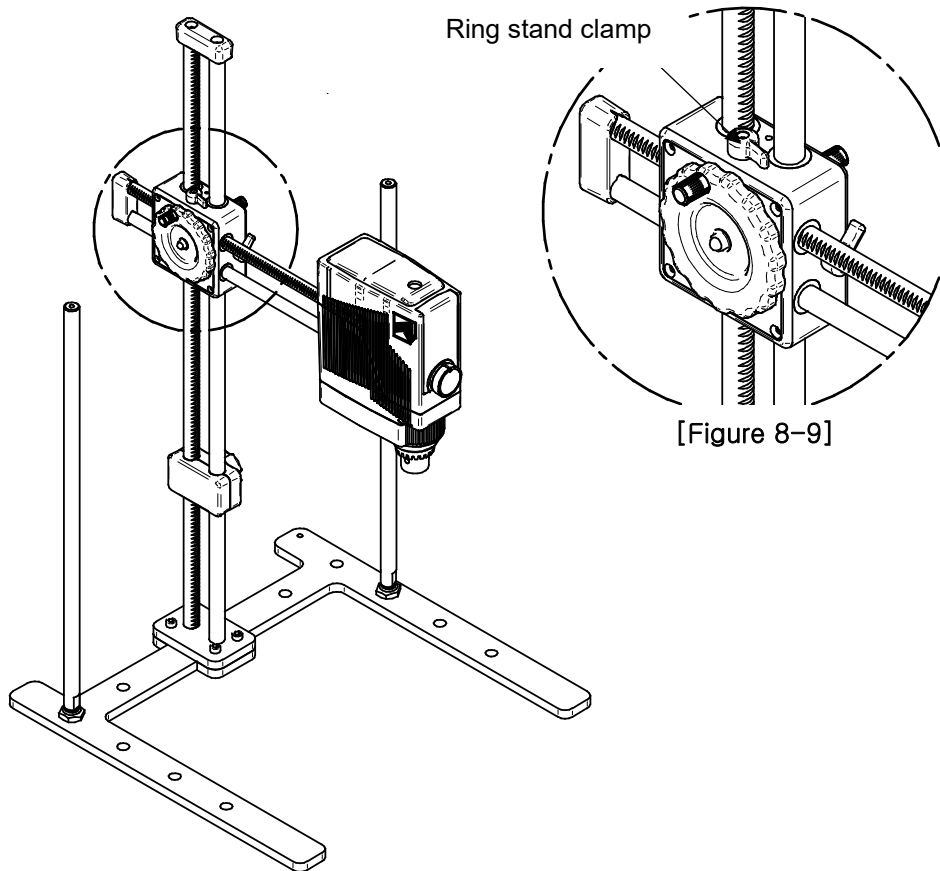
8.1.3.5 How to use advanced type of dial stand

A. Up and down movement



- (1) Turn the knob clockwise as shown [Figure 8-7] above
- (2) You can position the main body up and down by using dial knob as shown [Figure 8-7]
It moves upwards by turning the knob to the right and downwards by turning it to the left
- (3) After set the head in a proper position, fix it tightly by turning the knob
Counterclockwise.
- (4) Turn the block knob of Axis fixture block counterclockwise as [Figure 8-8] above, and
position it in the middle between the knob and frame plate.

B. Forward/backward movement



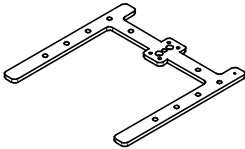
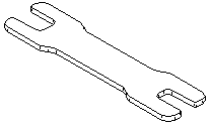
- (1) Turn the knob fixture clip counterclockwise as [Figure 8-9] above.
- (2) Head can move to upward and downward by dial knob as [Figure 8-9]
It moves to upward if the knob is turned clockwise and downwards if the knob is turned counterclockwise.
- (3) After set the head in a proper position, fix it tightly by turning the knob counterclockwise as [Figure 8-9] above.

CAUTION

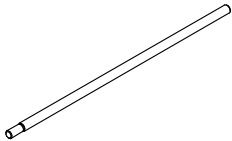
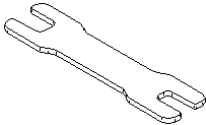
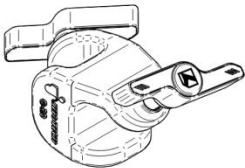
Safe operation can be guaranteed only with accessories supplied by Jeio Tech.
Please unplug power before you mount accessories.

8.2 Basic stand

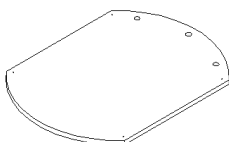
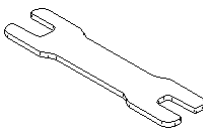
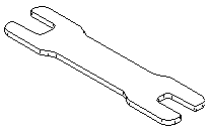
8.2.1 BS-01 Stand accessories

700mm support	Base plate	M6 Bolt
		 M6
Spanner		
 13mm / 10mm		

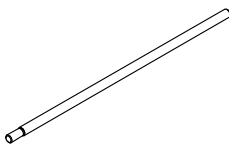
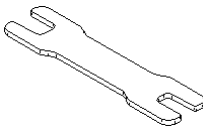
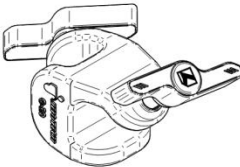
8.2.2 8.2.2 BS-01 Optional accessories

Support-500mm	M6 Bolt	Spanner
 Ø15, Ø18, Ø20 (option)	 M6	 13mm / 10mm
Clamp		
 (option)		

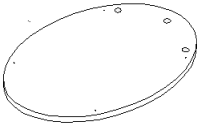
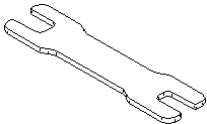
8.2.3 8.2.3 BS-02 Stand accessories

700mm-Support	Base plate	Spanner
		 13mm / 10mm
Spanner		
 13mm / 10mm		

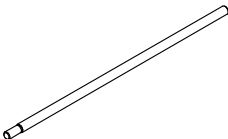
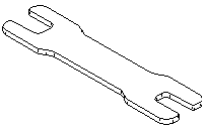
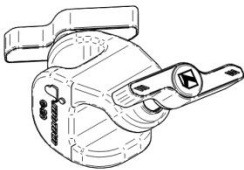
8.2.4 BS-02 Optional accessories

Support-500mm	M6 Bolt	Spanner
 Ø15, Ø18, Ø20 (option)	 M6	 13mm / 10mm
Clamp		
 (option)		

8.2.5 BS-03 Stand accessories

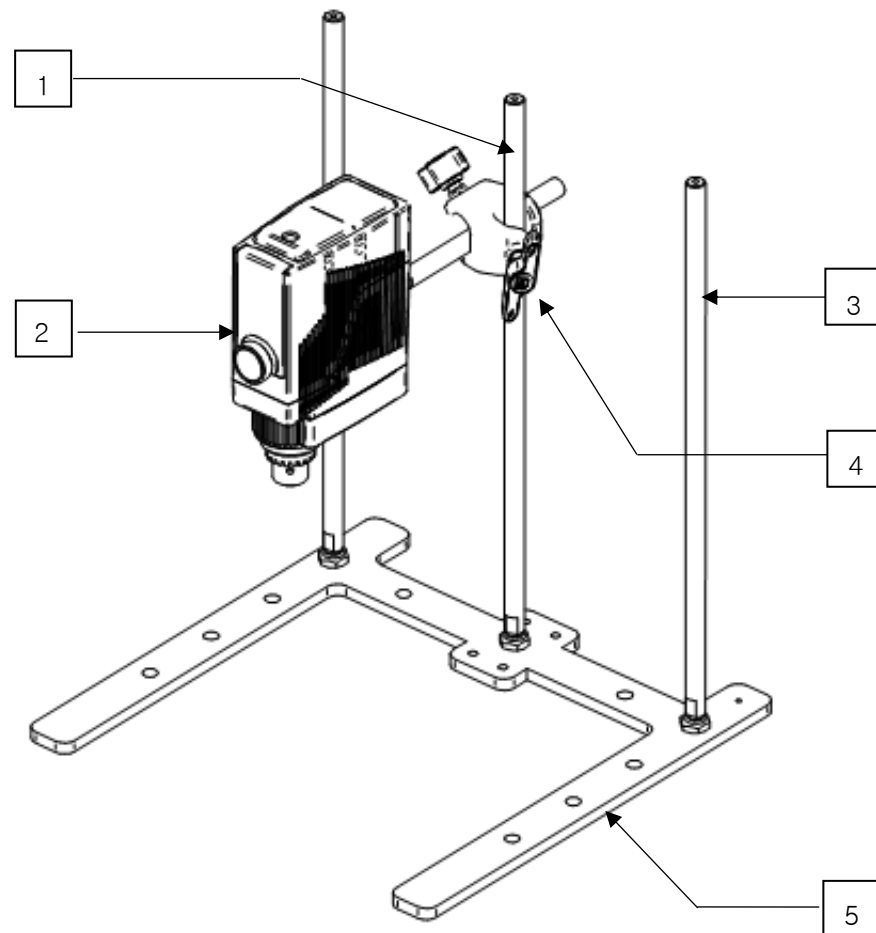
700mm support	Base plate	M6 Bolt
		 M6
Spanner		
 13mm / 10mm		

8.2.6 BS-03 Optional accessories

Support-500mm	M6 Bolt	Spanner
 Ø15, Ø18, Ø20 (option)	 M6	 13mm / 10mm
Clamp		
 (option)		

8.2.7 Assembly of basic stand

8.2.7.1 Deal drawing



- (1) Support (700mm)
- (2) Main body (Head)
- (3) Support (500mm-optional)
- (4) Clamp (Optional)
- (5) Base plate

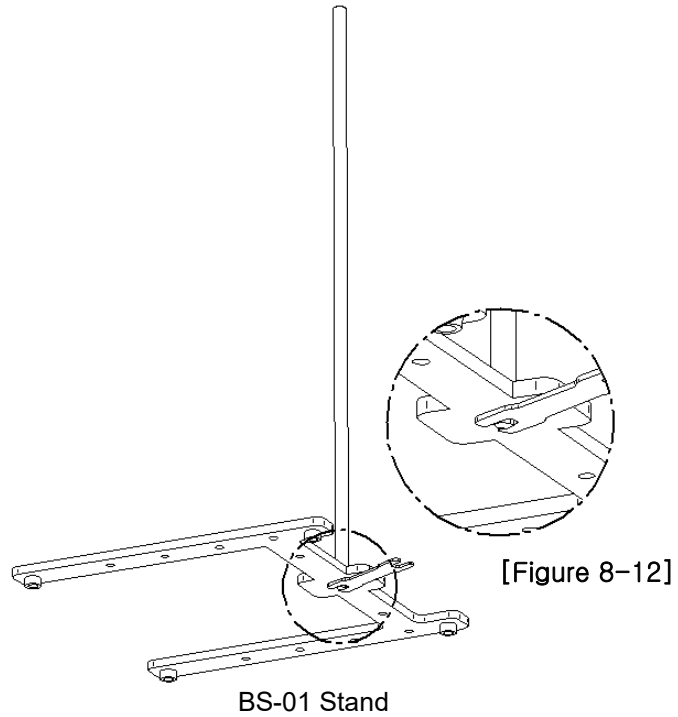
[Figure 8-10]

CAUTION

Please install this unit on a flat, dry and fireproof floor

8.2.7.2 8.2.7.2 Assembly of basic stand

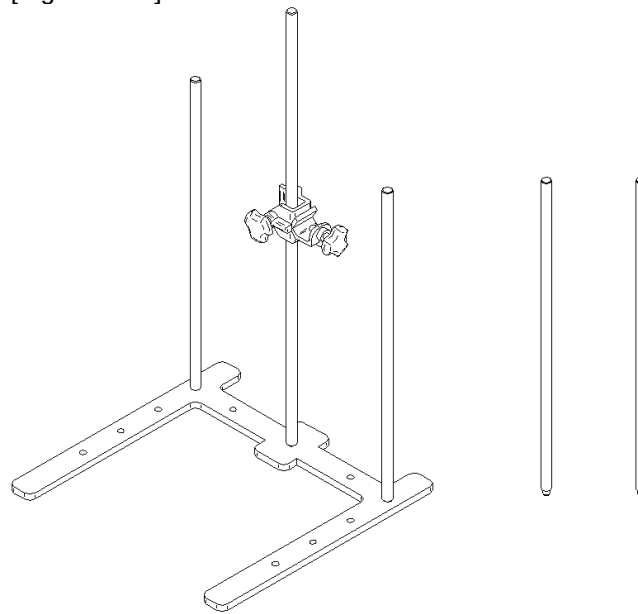
- (1) Bolt support (700mm) to the plate with 13mm/10mm spanner and M6 bolt as shown [Figure 8-11,12]



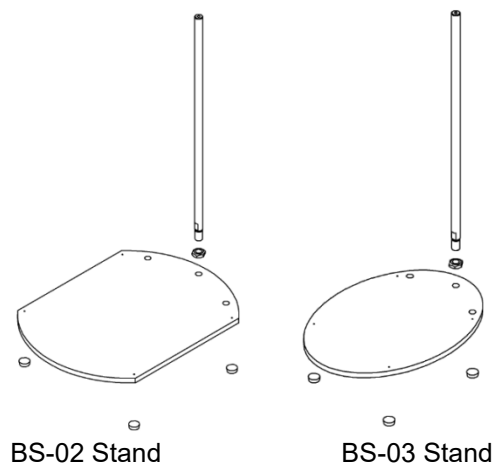
[Figure 8-11]

[Figure 8-12]

- (2) You can use optional $\varnothing 15$, $\varnothing 18$, $\varnothing 20$ support(500mm) and optional clamp assembling with the base plate as shown [Figure 8-13] below.

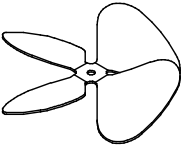
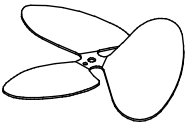
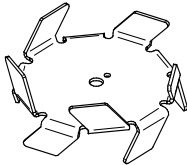
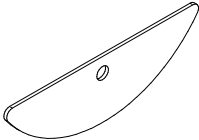
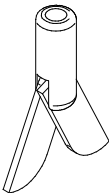


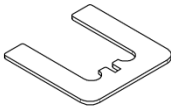
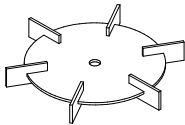
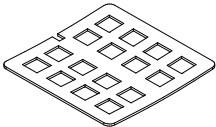
[Figure 8-13]



[Figure 8-14]

8.3 Impeller

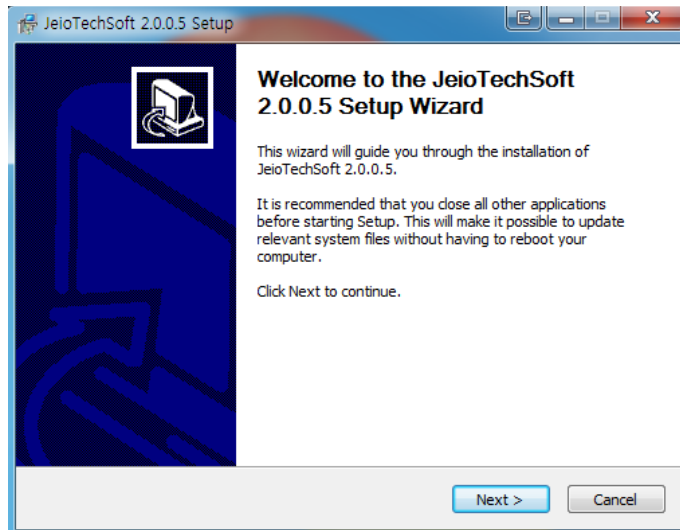
Designation	Materials	Description	Impeller Shaft
	SUS	4 bladed 50mm 4 bladed 70mm 4bladed 100mm	8Ø, 400mm
	PTFE	4 bladed 50mm 4 bladed 70mm	8Ø, 500mm
	SUS	3 bladed 50mm 3 bladed 70mm 3 bladed 100mm	8Ø, 400mm
	SUS	Dissolve 35mm Dissolve 55mm	8Ø, 400mm
	SUS	Half moon 65/20mm Half moon 90/25mm	8Ø, 300mm 8Ø, 500mm
	PTFE	Half moon 60/18mm	8Ø, 500mm
	SUS	Centrifugal 50mm Centrifugal 80mm (can be folded)	8Ø, 500mm
	PTFE	Centrifugal 76/17mm	8Ø, 500mm

Designation	Materials	Description	Impeller Shaft
	SUS	Anchor 45mm Anchor 60mm	8Ø, 300mm 8Ø, 500mm
	PTFE	Anchor 80/40mm Anchor 80/50mm	8Ø, 500mm
	SUS	Turbine 40mm Turbine 70mm	8Ø, 500mm
	PTFE	Turbine 70mm	8Ø, 500mm
	SUS	Paddle 70mm	8Ø, 500mm
	PTFE	Paddle 70mm Paddle 78/80mm	8Ø, 500mm

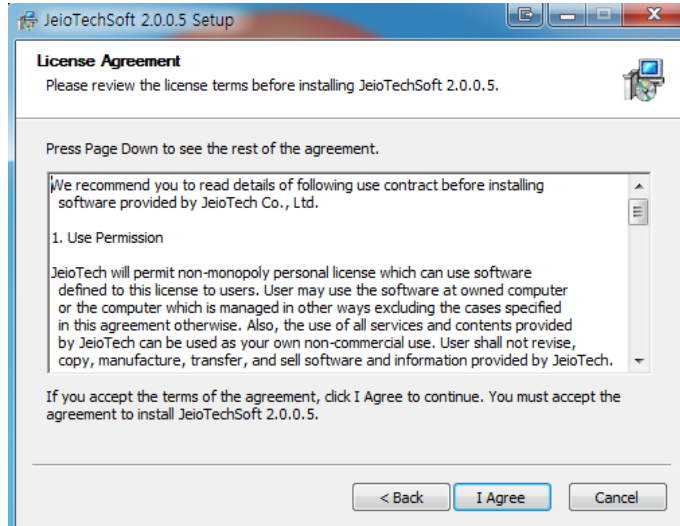
9.0 Exclusive S/W (MSD-0420 only)

9.1 Installation of Monitoring Program

- (1) The software is automatically installed. When user put the “Next” button, the screen showed “License Agreement” page.



- (2) Check the details and click the “I agree”



- (3) Click “Intall” and install the program.

Choose Install Location

Choose the folder in which to install JeioTechSoft 2.0.0.5.



Destination Folder

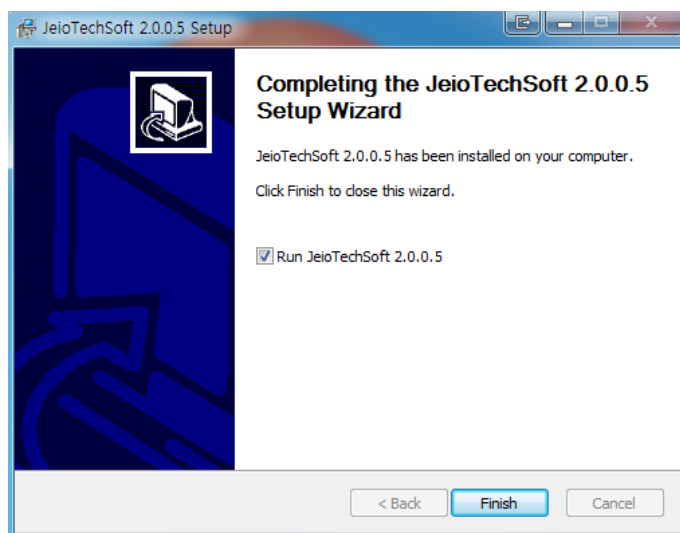
C:\Program Files (x86)\JEIOTECH\JeioTechSoft

Browse...

Space required: 21.9MB
Space available: 49.0GB

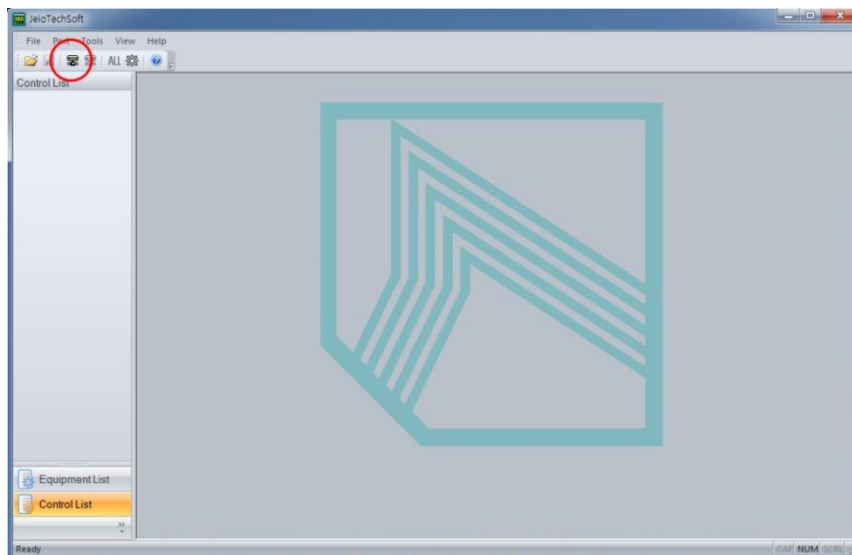
< Back Install Cancel

- (4) Once the program is installed, below window is up and JeioTechSoft icon is generated on the background.
Check the Run JeioTechSoft 2.0.0.5 or double click the icon then the program starts.

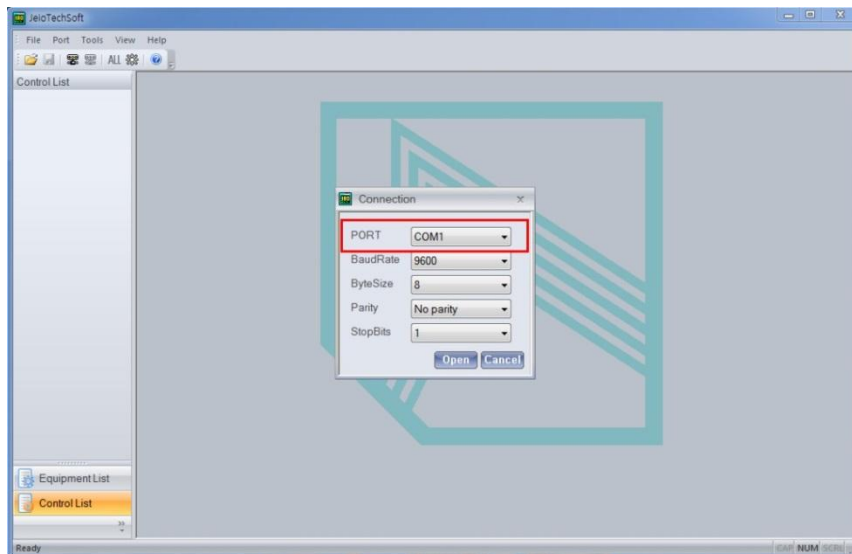


9.2 Program operation and equipment connection

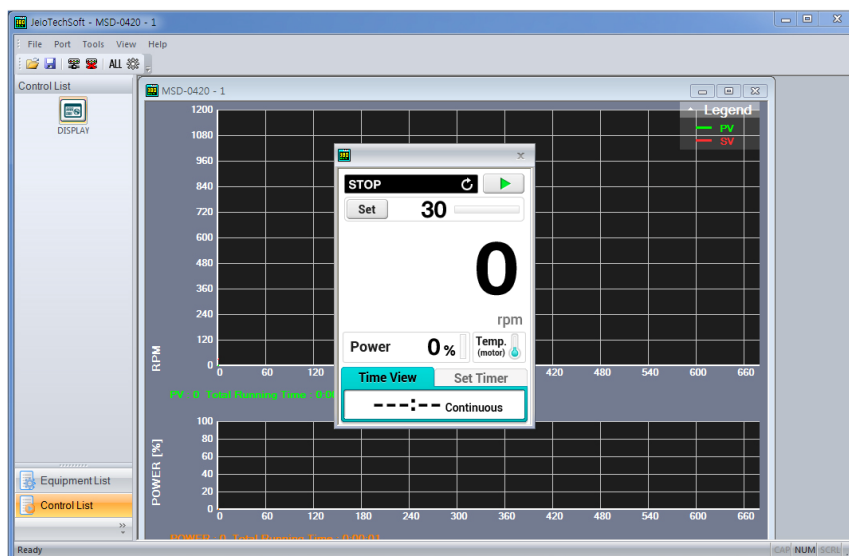
- (1) Double Click the operating file (🔧) in installed Program folder
- (2) Click the connection icon



- (3) Select the connected communication port



- (4) When the communication connecting is successful, you can see the screen below



9.3 Communication protocol

It is possible to communication from this product to external device by USB port. Providing JeioTech software can be supported the both way communication, check the operating status, data recording, and data saving. In addition, if you want to modify the software, please refer below communication protocol and communication reference.

Communication Reference :

http://www.modbus.org/docs/Modbus_Application_Protocol_V1_1b3.pdf

9.3.1 Physical Layer

- Communication port : USB

9.3.2 System number of each model

ITEM	System Number	System	Model Number
Overhead Stirrer series	A220H	-	MSD-0420

9.3.3 Modbus Protocol Address Definition

	Register	ModBus Adress (DEC)	Send Real Adress (DEC)	Description	Data	Data Length (byte)
W	WS	1	0	Beep - Test, Sound off	1	2
				Beep - Key sound	2	2
R	RH	2	1	Model Name	Don't Care	2

W	WS	3	2	System Reset(Watch Dog)	Don't Care	2
W	WS	4	3	System Reset	Don't Care	2
W	WS	5	4	Torque offset	0: Clear, 1: Apply	2
W	WS	6	5	Escape Stop State	Don't Care	2

R	RH	7	6	Model Name	Don't Care	2
R	RH	8	7	F/W Version	(ex) 2.5 <=> 0x0205	2
R	RH	9	8	Min rpm	Min rpm	2
R	RH	10	9	Max rpm	Max rpm	2
R	RH	11	10	Max Torque	Max Torque / 10.0	2
R	RH	12	11	Reserved	Reserved	2

R/ W	WS, WM, RI	13	12	Timer Set	Min.	2
R/ W	WS, WM, RI	14	13	Timer On/Off	0: off, not 0: on	2
R/ W	WS, WM, RI	15	14	Motor run/stop	0: stop, not 0: run	2
R/ W	WS, WM, RI	16	15	SV	Min rpm ~ Max rpm	2
R/ W	WS, WM, RI	17	16	Calibration Value	/10	2

R	RH	18	17	PV		2
R	RH	19	18	Torque	Data / 10	2
R	RH	20	19	Motor Temperature	Integer(0~ 60)	2
R	RH	21	20	Time Tick (Hour)	Hour	2
R	RH	22	21	Time Tick (Min, Sec)	High Byte: Min, Low Byte: Sec	2
R	RH	23	22	Shot Time Tick (Hour)	Hour	2
R	RH	24	23	Shot Time Tick (Min, Sec)	High Byte: Min, Low Byte: Sec	2
R	RH	25	24	Status		2

10.0 Appendix

10.1 Technical Specification

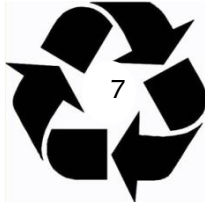
Models			MSD-0420	MSA-0420
Technical data	Stirring capacity, Max (H ₂ O,L)		20 (~2,000rpm)	
	Max. RPM at corresponding viscosity*	5,000(cP)	2000	
		10,000(cP)	1200	
		30,000(cP)	300	
		50,000(cP)	200	
	Speed control		Feedback control with PID 80~2,000rpm	
	Speed accuracy (No Load)		300~2,000rpm±1.0%	
	Speed display resolution		- Setting : user selectable increment(1~100rpm) - Display : 1rpm	- Setting : 5rpm - Display : 1rpm
	Rated torque (N·cm)		19	
General data	Motor efficiency		40/90 x100%	
	Control panel		FND(Flexible Numeric Display), Touch key Digital knob	FND(Flexible Numeric Display), Touch key 270° Analog knob
	Feature		- Display: Motor temp, Elapsed time, Power% - Selectable cw/ccw - Constant current	N/A
	Safety		Thermal protection/ current protection	
	Communication port		USB	N/A
	Chuck range(mm/inch)		3 to10 / 0.1 to 0.4	
	Overall Dimensions (W x D x H, mm/inch)		75 x 150 x 215 / 2.9 x 8.5 x 5.9	
	Net. Weight (kg/lbs)		2.8 / 6.2	
	Electrical requirements		AC 200~240V, 50/60Hz	
	Material	Main body	Cast aluminum alloy, powder coated	
		Cover	PP	

* Using 3-bladed propeller impeller, 50Ø

※ The standard value is recorded by 25°C, 60%R.H. conditions.

※ Above spec. can be changed without prior notice.

10.2 Disposing of products



Before you dispose product or the components

1. The equipment should be cleaned and decontaminated to protect workers servicing the equipment, the environment or the public purchasing surplus equipment because the incubated shaker can potentially be contaminated with biological material, chemicals or radioisotopes. Check with your institution or laboratory for individual policies and procedures for disposal of laboratory equipment.

2. Please contact your local governing body for regulations regarding disposal of electrical, electronic, metal (brass, aluminum, steel and stainless steel), refrigeration and rubber components. Jeio Tech recommends the user find a local scavenger or laboratory equipment recycler to properly dispose of the unit and its components.

10.3 Warranty

10.3.1 Warranty period

- (1) If the product fails during normal and proper use, the warranty period for manufacturing liability shall be two years from the date of delivery.
- (2) If you request a repair, please check the items below and let us know so that you can get a quicker and more accurate repair.

- | |
|---|
| <ul style="list-style-type: none">• Date of purchase:• Customer name / address / phone number / E-mail:• Fault status• Model• Serial number |
|---|

10.3.2 Technical Service Contact Points

Technical Services

Address : 153 (Youngsan-dong), Techno 2-ro Yuseong-gu, Daejeon-city, 34025, Republic of Korea

Tel : 1522-4298

Website : www.jeiotech.com

E-mail : help@jeiotech.com

10.3.3 Certificate of Product Warranty

This is a guide to the product quality warranty and service terms provided by JEIOTECH Co., Ltd

All products are guaranteed to operate normally when installed under proper conditions, as specified in the user manual for each product, and used according to the intended purposes and permissible operating conditions.

The warranty period for product quality starts from the delivery date and is indicated in the catalog provided for each product or in the purchase order agreed upon with the customer. If a product malfunctions within the warranty period, JEIOTECH Co., Ltd. provides free repair services. However, among the transportation costs incurred during the repair process, any special costs resulting from the customer's site conditions (e.g., door or wall modifications, use of special handling equipment) are not covered under the warranty. Furthermore, JEIOTECH's liability under this warranty is limited to replacing the product or refunding the original purchase price at JEIOTECH's sole discretion if reasonable attempts to repair or replace the product fail.

Parts replaced during free repairs within the warranty period become the property of JEIOTECH Co., Ltd. Additionally, the warranty period is not extended due to free repairs. JEIOTECH is not responsible for any losses incurred by the customer due to delays in repairs caused by issues such as part shortages or shipping delays.

The following cases will be handled as paid repairs, even within the warranty period:

1. Non-defective cases

- * Requests to resolve issues arising from improper operating environments or abnormal installations.
- * Reinstallation requests or connections with external equipment other than the initial installation.
- * Requests for usage instructions or simple adjustments that do not require disassembly.
- * Inspections of non-defective products.
- * Cleaning or debris removal service requests.

2. Failures caused by user errors:

- * Malfunctions due to usage not in accordance with the user manual.
- * Issues resulting from improper operating environments or abnormal installations.
- * Malfunctions caused by incompatible chemical usage.
- * Malfunctions caused by irregular or improper electrical or utility supplies.
- * Damage due to product movement, storage, external impact, or dropping by the customer.
- * Malfunctions resulting from unauthorized modifications or repairs without prior written approval from JEIOTECH Co., Ltd.
- * Malfunctions caused by using consumables or optional components not specified by JEIOTECH Co., Ltd.
- * Repairs performed by personnel other than JEIOTECH or its authorized service agents.

3. Other cases

- * When the product model or serial number has been damaged, removed, manipulated, or altered.
 - * Malfunctions caused by fire, flooding, or other natural disasters.
 - * Failure due to consumable parts reaching the end of their lifespan (e.g., lamps, filters, fuses, gaskets, packings, hoses, heat transfer fluids).
 - * Natural wear and tear (e.g., discoloration, screen printing degradation).
 - * Damage or malfunction of product accessories (e.g., power cables, data cables, glass components) or options.
 - * Malfunctions caused by errors in computers, computer components, or connected network systems.
- Before JEIOTECH performs free or paid repairs or accepts the return of a product, the customer must ensure the product has been decontaminated of chemical and biological hazards.
 - Replacement parts used during repairs may differ from the original but will function correctly and be equivalent in performance.
 - JEIOTECH does not bear any responsibility for damage to stored samples, data loss, or any other

direct or indirect damages caused by product malfunctions, regardless of the warranty period.

- JEIOTECH does not guarantee issues related to computers, computer components, or network systems connected to the product, regardless of the warranty period.
- This warranty is the sole and exclusive warranty provided. Any implied warranties imposed by applicable laws are limited to the warranty period stated herein. This warranty cannot be modified by any verbal advice, statements, or documents on behalf of JEIOTECH unless explicitly labeled as a "Warranty Amendment" and signed by an authorized representative of JEIOTECH.
- This warranty applies only to products purchased for direct use by the customer. It does not cover products purchased for resale purposes without prior written approval from JEIOTECH.
- This warranty does not apply to consumables and is non-transferable.

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- The contents of this manual are subject to change without notice to improve the performance of the product and to ensure accurate information delivery.
- Copyright of this manual is in JEIOTECH.