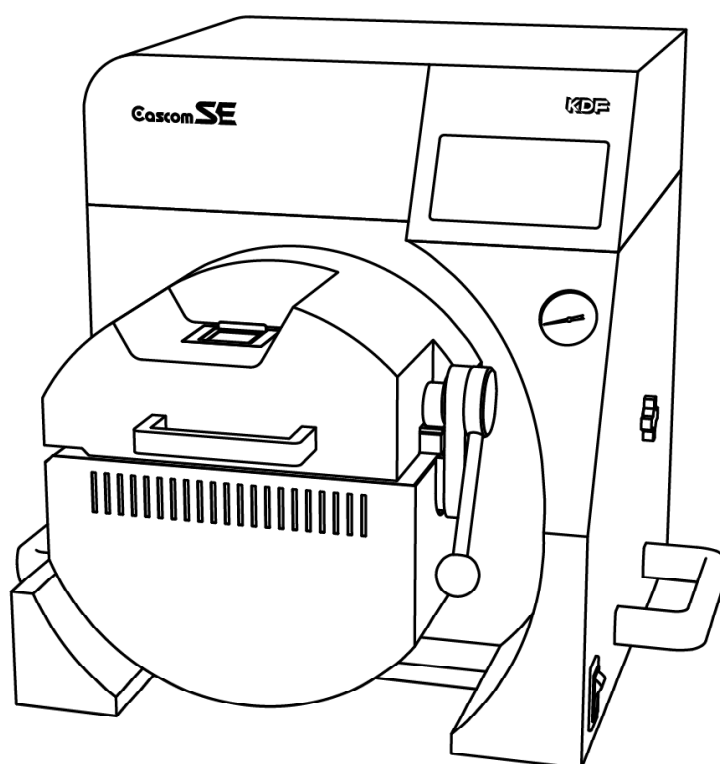


CascomSE

Instruction Manual



Before using the KDF Cascom SE, please read the manual thoroughly and understand the capabilities and proper usage for this machine.

Technical advice and tips regarding casting are covered in the separate " Casting Manual ". Please keep these manuals in an easily accessible location for your future reference.

DENKEN-HIGHDENTAL Co.,Ltd.

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■ Safety Precautions

We recommend you to follow these instruments for proper use of the unit.

The safety precautions contained herein and the accompanying icons are provided for the safe use of this machine and to prevent injuries and loss on material resources.

Please read them carefully prior to your actual machine operation. It is recommended that use of this unit should not be attempted by anyone who is not well informed of the precautions necessary for machine operation.

Reference pages of the related topics in this manual are illustrated with arrow marks (i.e. → P12)

 WARNING	Failure to follow or ignorance of the directions may cause severe injury or death.
 CAUTION	Failure to follow or ignorance of the directions may cause injuries or damages to material properties.

Examples of Precaution Icons



This mark requires a user to pay attention to the caution mark as shown inside or around it. The illustration on the left means to exercise caution for shock hazard.



















This mark means prohibited actions as shown inside or around it. The illustration on the left means "Do not disassemble."













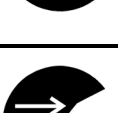
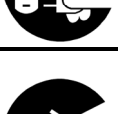

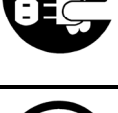



This mark means forced action and directions to follow as shown inside or around it. The illustration on the left means "Unplug out of power outlet".

⚠ WARNING

 <p>Prohibited</p>	<p>Keep the unit away from a person with a pacemaker. The magnetic field may cause a malfunction of a pacemaker. Keep away from a person with a pacemaker.</p>
 <p>Unplug</p>	<p>In the event when there is smoke, abnormal odors or sounds, unplug immediately and contact the dealer for repairs. Continued use may cause electric shock or fire. We recommend you not to attempt repairs yourself.</p> 
 <p>Unplug</p>	<p>In the event when water or debris enters the machine, unplug immediately and contact the dealer for advice. Continued use may cause electric shock or fire.</p> 
 <p>Unplug</p>	<p>In the event when the machine is dropped or the furnace frame is dented, unplug immediately and contact the dealer for advice. Continued use may cause electric shock or fire.</p> 
 <p>Unplug</p>	<p>When the water leaking warning (Warning 01 & 02) is displayed, unplug and stop using immediately. Continued use may cause electric shock.</p> 
 <p>Do Not Disassemble</p>	<p>Do not remove the panels or parts uninstructed or modify them in any manner. Some of the parts inside contain high voltage and contact with them may cause fire or electric shock. We recommend you to contact the dealer for repairs or machine maintenance.</p> 
 <p>Ground Connection</p>	<p>Connect a grounded outlet. Improper connection may cause electric shock.</p>
 <p>Not Designated Volt. Prohibited</p>	<p>Plug to the power outlet of the designated voltage described in the main specifications. Use of any other voltage may cause fire or shock.</p> 
 <p>Strictly Required</p>	<p>The machine can melt alloys with an opened lid. In case of melting alloy with an opened lid, use protective glasses, a heat resistant glove, and surgical mask.</p>
 <p>Prohibited</p>	<p>Keep the unit away from other equipment and walls.</p> <ul style="list-style-type: none"> • Leave minimum of 20cm of space around the unit as well as 1m of space above the unit. If not, conduct fire prevention.

⚠ CAUTION

 Prohibited	<p>Do not use or place anything flammable near the machine. Fire or skin burns may result.</p>
 Prohibited	<p>Do not place the machine on an unstable base to prevent falling or damage to the unit. This may cause injury.</p>
 Prohibited	<p>When you unplug the power cord from the power outlet, do not pull the cord. If the cord is damaged, it may cause fire or shock. Always remove by handling the plug. </p>
 Prohibited	<p>Do not place heavy items or place machine on the power cord and make sure that the cord is not pulled too tightly and not damaged. This may cause fire or electric shock. </p>
 Prohibited	<p>This machine is for dental casting. We do not recommend you to use the machine for any other purposes.</p>
 Prohibited	<p>Please use KDF genuine products for consuming parts, option parts and / or parts for repairing. Otherwise, it may cause the machine failure or trouble.</p>
 Caution	<p>Pay attention when the chamber inverts. It could tug your tie, scarf, stole, etc.</p>
 Check prior to use	<p>Check the machine for signs of parts damage prior to use and make sure the unit is in normal state. Contact the dealer for advice when you find anything abnormal.</p>
 Strictly Required	<p>Plug the main power cord completely into the power outlet. The plug may heat up and cause fire or burns if not entirely plugged in. In addition, if the metal part of plug is touched while the plug is not fully plugged in, electric shock may result. </p>
 Unplug	<p>Unplug the main power cord from the power outlet when the machine is not in use for a long period of time.</p>
 Unplug	<p>In case of periodic machine maintenance, unplug the power cord from the power outlet. Do not handle the plug with wet hands. This may cause electric shock. </p>
 Wet Handing Prohibited	<p>Do not handle the machine with wet hands as this may cause electric shock. </p>

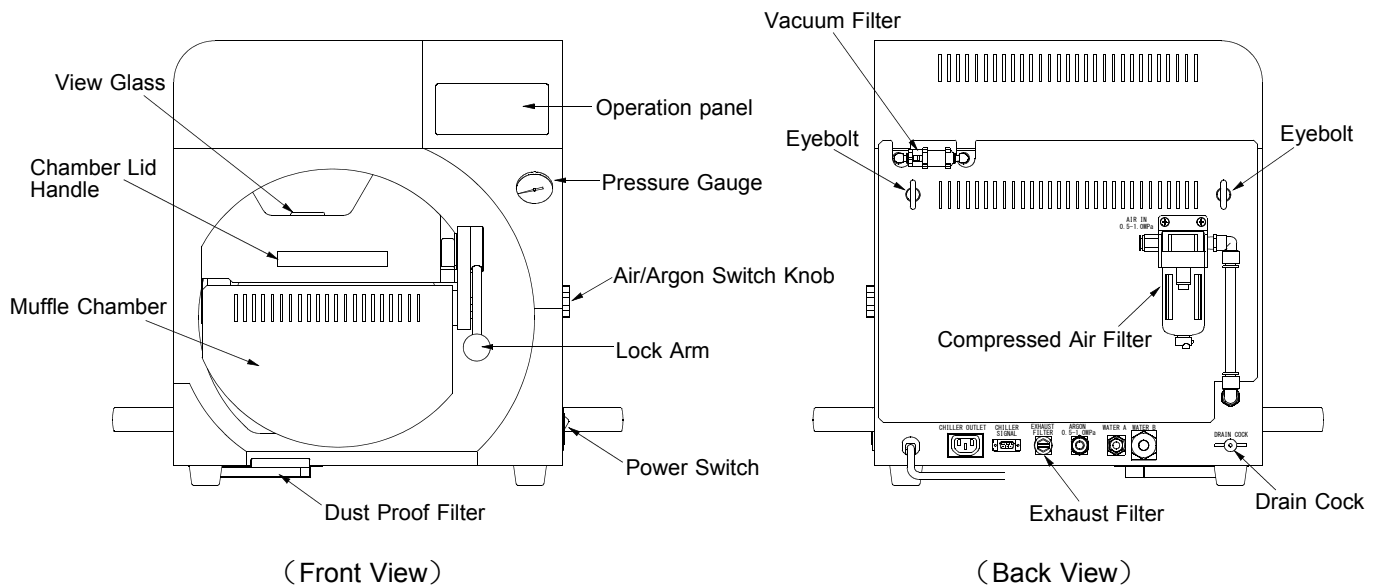
■ Standard Accessories

When you unpack the machine, we recommend you to make sure that the following standard accessories are included. In addition, please check the machine for any damage or dent on the unit surface. Contact the dealer if there is any damage on the unit.

Small Tweezers	1 pc	Normal tweezers for several uses.
Crucible Stand	1 pc	Stand for crucibles, tweezers and melting alloy outlet.
Crucible Box	1 pc	Ceramic Crucible(3pcs), Carbon Crucible S(1pc), Melting Alloy Outlet (3pcs)
Vacuum Filter Element	1 pc	Reserve of Vacuum Filter Element.
Blue Piping Tube for Air & Argon Gas (5m)	1 pc	Used to connect compressed air to chiller and argon gas to the unit.
Instruction Manual	1 booklet	Operation manual with precautions for safe and proper uses of the unit.
Casting Manual	1 booklet	Instruction and tips on casting techniques for the unit.

■ Descriptions of Component Parts

● Main Parts and Descriptions




Operation Panel	Panel to operate a casting process.
Pressure Gauge	Indicates pressure inside of the muffle chamber.
Lock Arm	Used to lock the chamber lid and seal the muffle chamber.
Power Switch	with 20A breaker. In case of eddy current, shut it down immediately.
Dust Proof Filter	Used to prevent dust from entering the unit.
Muffle Chamber	Used to house furnace muffle to heat up and melt casting alloys.
Chamber Lid Handle	Used to manually open and close the chamber lid. Note) Be gentle when you open and close the chamber lid. Quickly repeated movement will cause damage to the unit.
View Glass	Used to protect eyes when checking melting alloy.
Vacuum Filter	Used to prevent dust in the chamber from entering the unit.
Eyebolt	Used to prevent the unit from falling down. Tie down the unit.
Air/Argon Switch Knob	Manual switch knob to choose between pressurized air or argon gas in applying pressure for casting.
Compressed Air Filter	Used to prevent rust, dust, moisture etc. out of compressor from entering the unit. Periodic cleaning is recommended.
Drain Cock	Cock to drain the moisture in the internal air tank.
Exhaust Filter	This is the exhaust filter of vacuum unit.

■ Precautions before use

● Power Requirement

The unit requires a power outlet with independently wired, 220-240V single-phase, 20A and grounding.

 Note) Do not use a 2 pin plug adaptor and break a grounding pin of power cord. They may cause electric shock.

● Location & Environment

Set up the unit on the center of a flat stable table.

Keep the unit away from walls and other equipment.

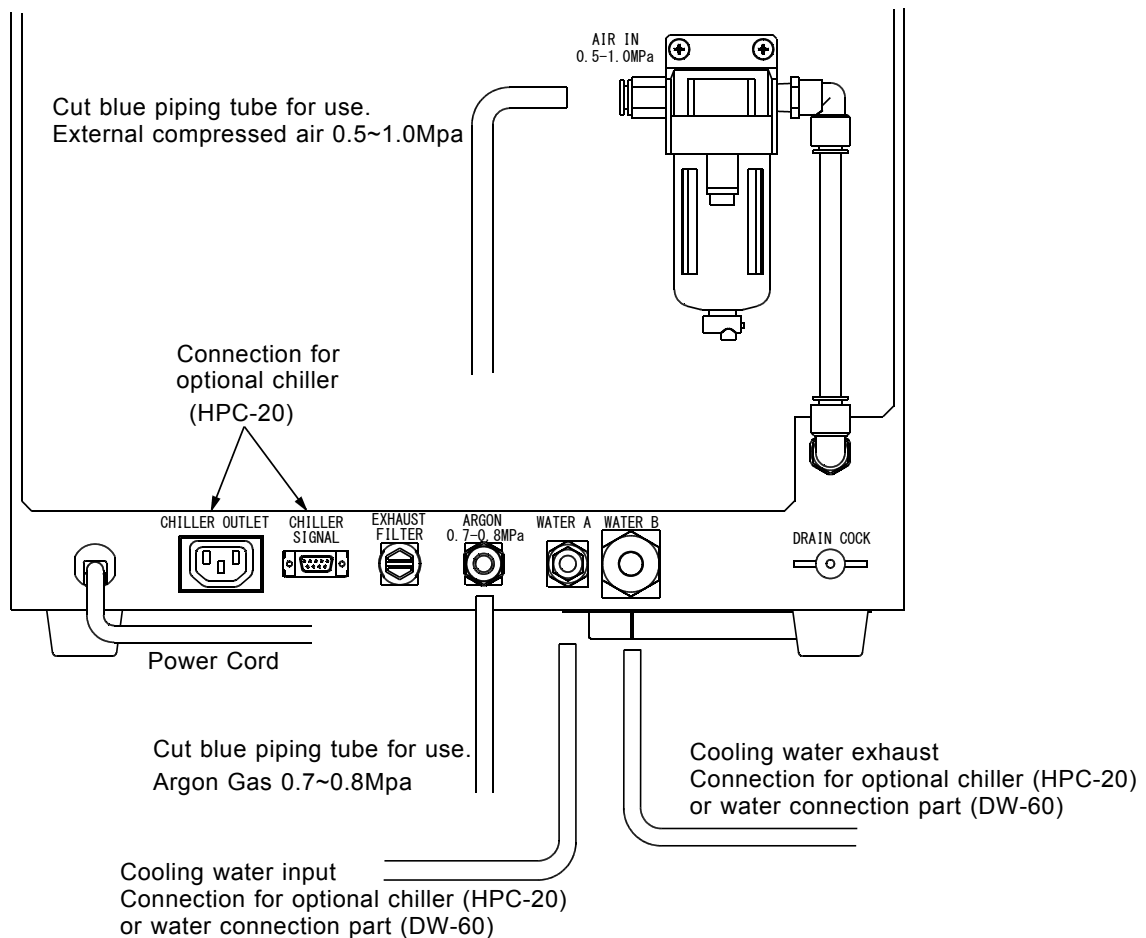
Note) Leave minimum of 20cm of space around the unit as well as 1m of space above the unit.

Do not place anything flammable near the unit. If not, conduct fire prevention.

● Piping of Cooling Water, Vacuum Pump & Argon Gas

Connect cooling water and pressurized air to the unit as shown in figure below.

If necessary, connect argon gas to the unit.



Note) When the external chiller HPC-20 is not used for water supply, please keep cooling water temperature under 60 °C .
Improper temperature may cause malfunction of the unit.

Note) The unit will not work without the proper connection of WATER A and WATER B.

Note) Cut the blue piping tube for air & argon gas (5m) to proper length.

Note) Connect the white piping tube completely until the red line. Improper piping may cause water leaking.

Note) Connect CHILLER SIGNAL terminal completely with screws.

Note) Keep the hose length short to decrease the flow resistance within hose to a minimum.

Note) Keep the air pressure between 0.5 and 1.0MPa.


Note) Keep the argon gas pressure between 0.5 and 1.0MPa.


Note) Place the hose in a secure location where it will not get stepped on or tripped over.

The installation is finished.

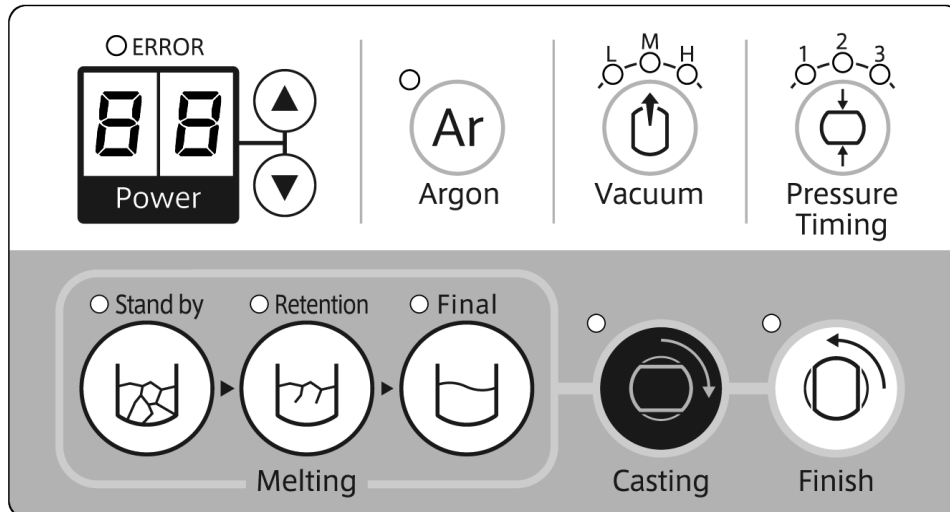
■ Power On

After installation is complete, turn the power on.

When using an optional chiller (HPC-20) and turning on the power for the power on, wait for 10 minutes until water circulates completely. When warning  4 “Chiller Water Current Abnormal” is displayed, turn off and on. In the case of chiller abnormal warning due to improper piping of chiller or insufficient amount of water, turn off the unit, check the connection, add water, and turn the unit back on again.

When using direct connection of water and error  4 is displayed due to uncirculated or low flow, check the water supply status.

■ Operation Panel



● Display & Lamp

- 「ERROR」 Lamp

When the unit is abnormal, the lamp will illuminate and error number will be displayed on 2-digit display.

- 「Power」 Display

High frequency power is displayed between 0 and 99%. Elapsed time is displayed during cooling of casting or when the unit is abnormal, error number is displayed.

- 「Ar」 Lamp
- 「L、M、H」 Lamp
- 「1、2、3」 Lamp
- 「Stand by」 Lamp
- 「Retention」 Lamp
- 「Final」 Lamp

The lamp illuminates when argon gas is injected.

Vacuum level is displayed. The lamp will blink during vacuum operation.

Pressure Timing is displayed. The lamp will blink during pressurization.

The lamp will illuminate during Stand by Melting operation.

The lamp will illuminate during Retention Melting operation.

The lamp will illuminate during Final Melting operation.

- 「Casting」 Lamp
- 「Finish」 Lamp

The lamp will illuminate when casting is available and blink during pressurization.

The lamp will illuminate during cooling.

● Buttons

- 「△、▽」
- 「Ar」
- 「Vacuum」
- 「Pressure Timing」
- 「Stand by」
- 「Retention」
- 「Final」
- 「Casting」
- 「Finish」

Change the high frequency power in increments of 5%.

Is ON/OFF button to inject argon gas.

Change vacuum level.

Change pressure timing.

ON/OFF button of Stand by Melting operation.

ON/OFF button of Retention Melting operation. Retention Melting

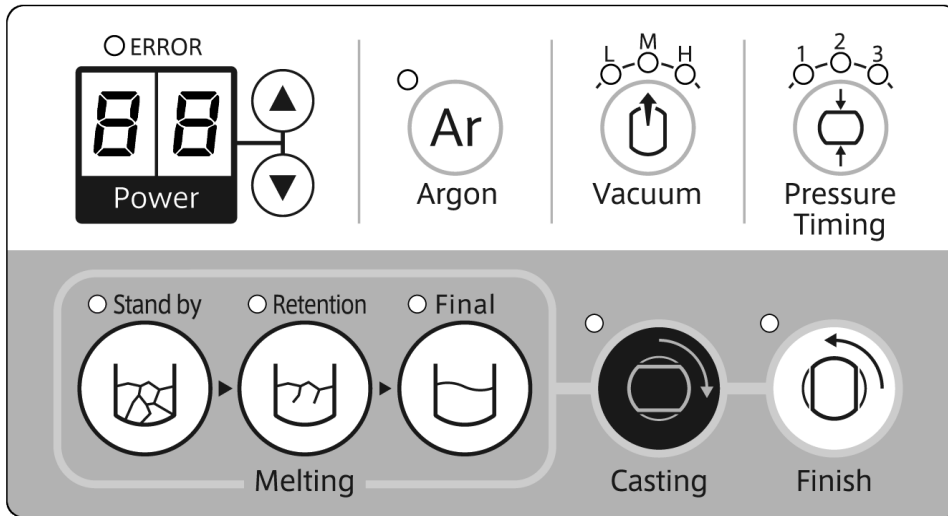
ON/OFF button of Final Melting operation.

Press the button to cast with chamber inverting and pressure.

After cooling time is finished, press the button to complete casting.

■ Casting Parameters

● Parameters and how to set



Content	Description	Default
Vacuum	Vacuum level during melting and casting. The range: (L)ow, (M)iddle, (H)igh L: Silver, M: Non Precious, H: Gold The level changes in the order corresponding to L → M → H → L.	M
Pressure Timing	Set pressure timing from chamber inverting to pressure application. The range: 1, 2, 3 1: Fast (Cobalt 0.5s), 2: Middle (Nickel 0.7s), 3: Slow (Gold, Silver 0.9s) The timing changes in the order corresponding to 1 → 2 → 3 → 1.	1
Stand by	Set standby melting power. The value range: 0~99%. ※ This operation is to mass the melting alloy before casting. Can change in increment of 5% with Δ ∇ buttons during Stand-by operation.	99
Retention	Set retention melting power. The value range: 0~99%. ※ This operation is to hold temperature, not to cool the melting alloy when setting a casting ring. Can change in increment of 5% with Δ ∇ buttons during Retention operation.	40
Final	Set final melting power. The value range: 0~99%. ※ This operation is to reach the casting temperature. Can change in increment of 5% with Δ ∇ buttons during Final operation.	70

■ Melting and Casting



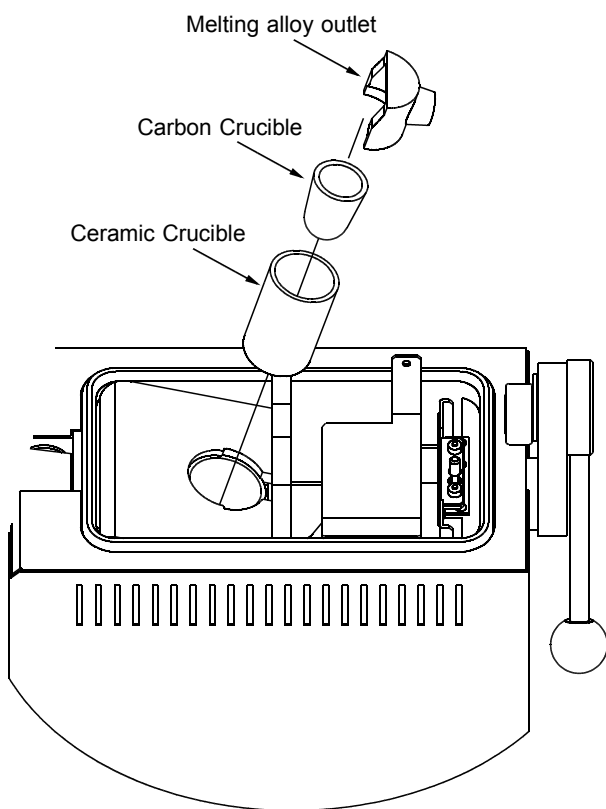
Note) Never touch hot objects such as crucibles, melting alloy outlet and casting rings with bare hands.
Do not put bare hands inside of the hot muffle chamber. This may cause skin burn.

● Crucible Installation

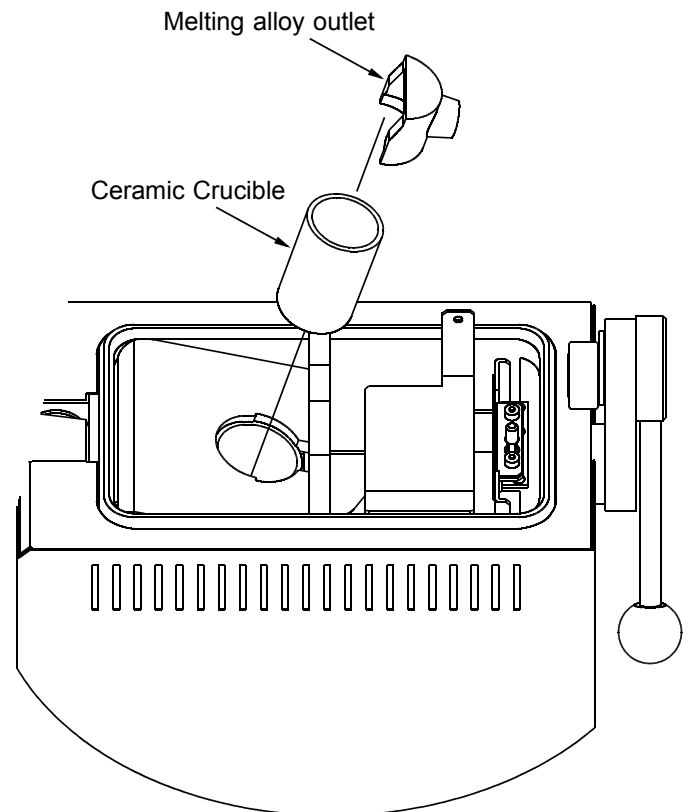
Set a crucible and melting alloy outlet as shown in the figures below.



Note) Dedicate a crucible and melting alloy outlet for each alloy.
Note) Do not forget to set the melting alloy outlet. If it is not set, the splashing of melting alloy inside the chamber muffle may cause malfunctions.



Carbon Crucible

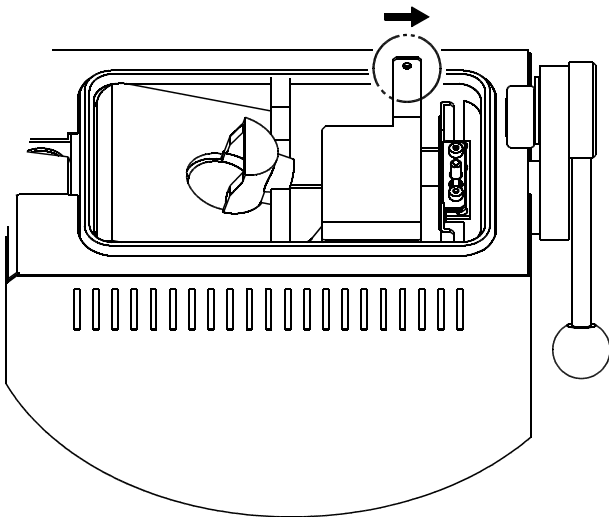


Ceramic Crucible

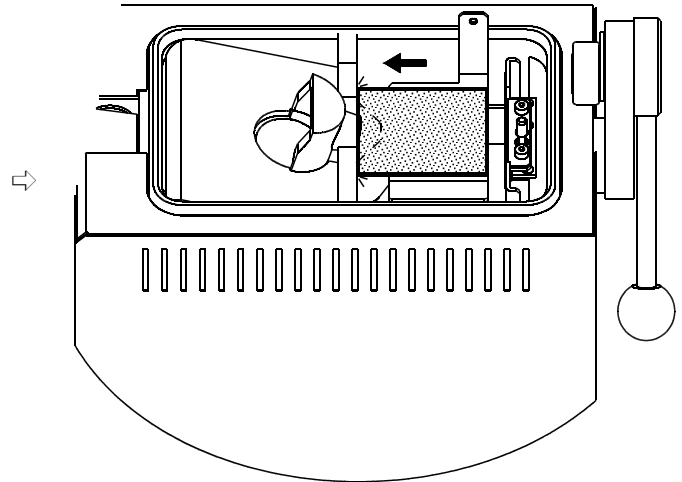


Note) Put a carbon crucible in a ceramic crucible not melting alloy.


● Ring Installation



Tilt the lever to your right to unlock the casting ring stand. Insert the provided tweezers to the hole of the lever and move up and down in accordance with size of casting ring.



Set a casting ring against the melting alloy outlet without gap between melting alloy and casting ring

 Note) When taking hot casting rings out, use a heat resistant glove and tongs to prevent skin burn.



There are labels of 3, 4, 6, 8, 9 on the backside of the casting ring stand. Nearly Equal; 3: dia.34、 4: dia.46、 6: dia.60、 8: dia.80、 9: dia.90

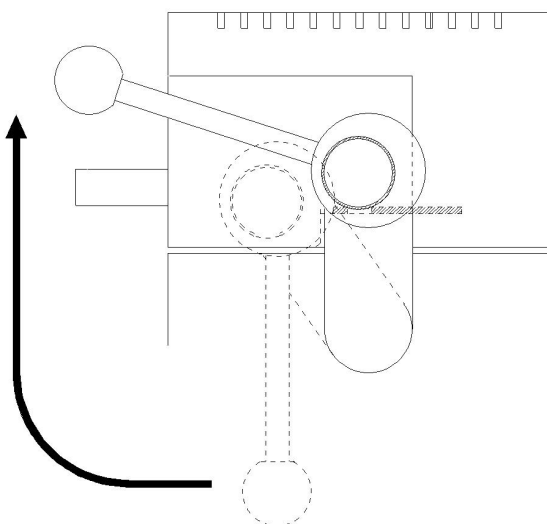


Note) Do not touch the casting ring stand. This may cause skin burn.

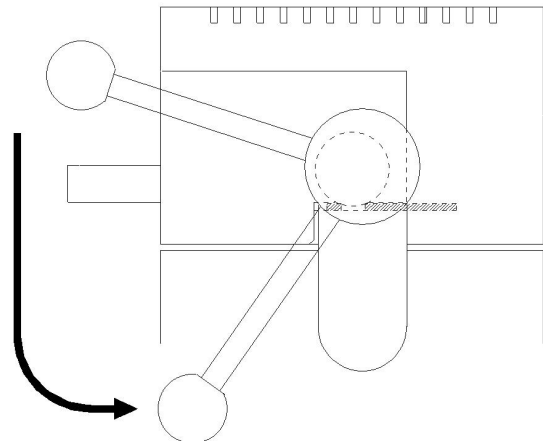
● Chamber Lid Locking

Place a casting ring and close the chamber lid.

Note) Open and close the chamber lid gently to prevent malfunction.

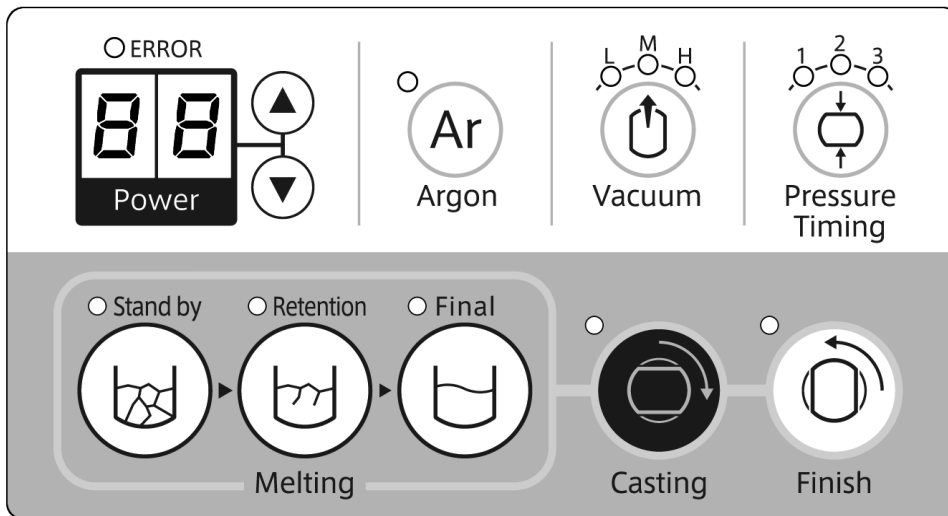


Move up and put the lever on the ditch.



Move down the lever to turn on the lock switch and ready to cast.

● Melting and Casting for Precious Metal




- ① Check the condition of ceramic crucible (cracks, damage) and set the ceramic crucible and melting alloy outlet properly.
 Note) Do not forget to use the melting alloy outlet to prevent machine malfunction.

- ② Put alloy inside of the crucible. Line up alloy ingots in order to prevent crucible breakage due to alloy heat expansion. Especially, in case of using used alloy, take care of alloy heat expansion.

- ③ Close and lock the chamber lid.

- ④ Press the “Standby” button to vacuum and increase the temperature inside of the chamber.
 Check the melting condition visually from the window of lid and wait until the melting alloy become mass.

 Note) Use a shaded protective glass to protect your eyes in case of high temperature.

- ⑤ After the melting alloy become mass, press the “Retention” button to hold the temperature.

- ⑥ Unlock the chamber lid with this condition and vacuum will be automatically released (wait 5 seconds to open the door) . After the release of vacuum, place a burned-out casting ring. If the button is not at the center, adjust the space so that the casting ring is set properly and fit the melting alloy outlet.

Note) In case sprue center is not at the center of investment ring, place sprue center to upward to utilize the casting chamber space and close the casting chamber lid.

- ⑦ Lock the chamber lid and press the “Final” button so that “Casting” lamp will illuminate and “Casting” button will be usable.

※ If the chamber lid is not locked completely, cannot use the “Casting” button.

- ⑧ After checking the alloy melting condition, press the “Casting” button to invert the muffle chamber automatically.

※ “Casting” lamp blinks during cooling and elapsed time of cooling is displayed in increment of 10 seconds on the “Power” display. 1.4 means 1 minute 40 seconds.

- ⑨ After required cooling time is finished, press the “Finish” button to release pressure and revert the muffle chamber to the original position.

※ If it takes 10 minutes, pressure is released and revert the muffle chamber to the original position automatically.

- ⑩ Open the chamber lid and remove the casing ring.

● Melting and Casting for Semi and Non-Precious (Metal that contains Palladium for more than 30%).

Process until the ② is same as Melting and Casting Precious metal.

③ Place a casting ring inside the muffle chamber.

④ Close and lock the muffle chamber.

⑤ Press the [Ar] button to repeat twice to create a vacuum and inject an argon gas with 0.03MPa pressure inside the muffle chamber (takes approx. 70 sec). The pressure gauge must be at 0.03 before ⑥ .

⑥ After Argon substitution is completed, press the [Final] button to melt the alloy.

⑦ When the casting timing nearly comes, press the [Ar] button again to vacuum in the muffle chamber.

Back to ⑧ of “Melting and Casting Precious Metal” .

■ Other Operations

● Chamber Position Adjustment

Muffle rotation and its position could slightly move after many years of usage.

In this case, adjust the muffle rotation and its position by the following.

Keep pressing the ▲ button and press the “Finish” button during the standby mode after power on. L, M and H lamp of “Vacuum”, lamps of “Stand by”, “Retention”, “Final” and “Casting” illuminate and “Finish” lamp blinks.

1. Lock the chamber lid and press the “Argon” button so that its lamp illuminates and the muffle chamber inverts.
2. Press the “▲” “▼” buttons to adjust the casting position (inverting position). When the rotation is too far, subtract the casting position value.
3. Press the “Pressure Timing” button so that the lamps of L, M and H go out and lamps of 1, 2 and 3 illuminate.
4. Press the “▲” “▼” buttons to adjust the melting position (original position) in the same way as the casting position.
5. Press the “Vacuum” button to adjust the casting chamber position again. After some adjustments of the casting chamber position and melting chamber position, press the “Vacuum” button to finish the adjustment.
 - ※ If you do not press the “Finish” button, the adjustment will not be saved.
 - ※ Note) If the unit continues the operation 50 times, “ERROR” lamp blinks and the unit stops inverting. Press the “Argon” button to adjust their positions again.

◎ Air/Argon Switch Knob

The knob is equipped at right side of the unit. You can choose air pressure or argon gas pressure.

Argon gas pressure is useful to minimize oxidation of melting alloy.

※ In case of using argon gas pressure, use a regulator to set pressure between 0.5 and 0.9MPa.

※ Note) Perform the casting operation without melting of the alloy to exhaust gas because it will be mixed in the first pressure after the pressure type is switched.

■ Periodic Machine Cleaning

In order to maintain the capacity of this unit further longer the following periodic cleanings prior to use are recommended.



Note) When you perform machine maintenance, make sure that the unit is turned off and the muffle heat is as low as room temperature to prevent the cause of skin burn and electric shock.

● Muffle Cleaning

When the chamber turns upside down for casting operation, metal debris, etc. in the muffle may result in miscasting. We recommend you to use the dust collector provided referring to the following recommendations.

Figure 1. Open the chamber lid and lift the knob (①). Move the knob in the direction of ② to unlock.

Figure 2. Lift the tab to remove the casting ring stand.

Figure 3. Take out the dust collector on the bottom to clean the dust. In reverse order, place the dust collector and the casting ring stand back to its original position.

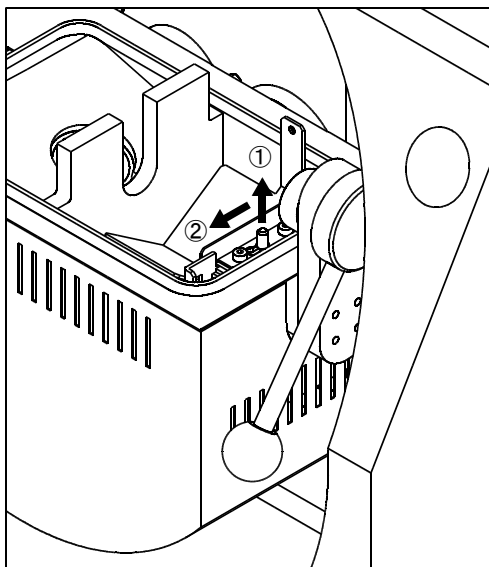


Figure 1

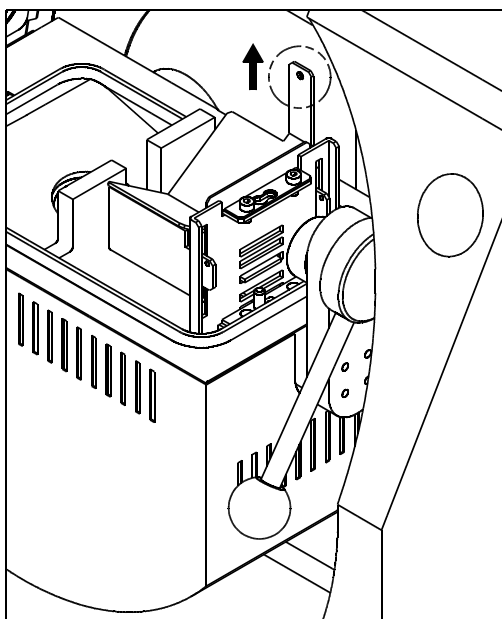


Figure 2

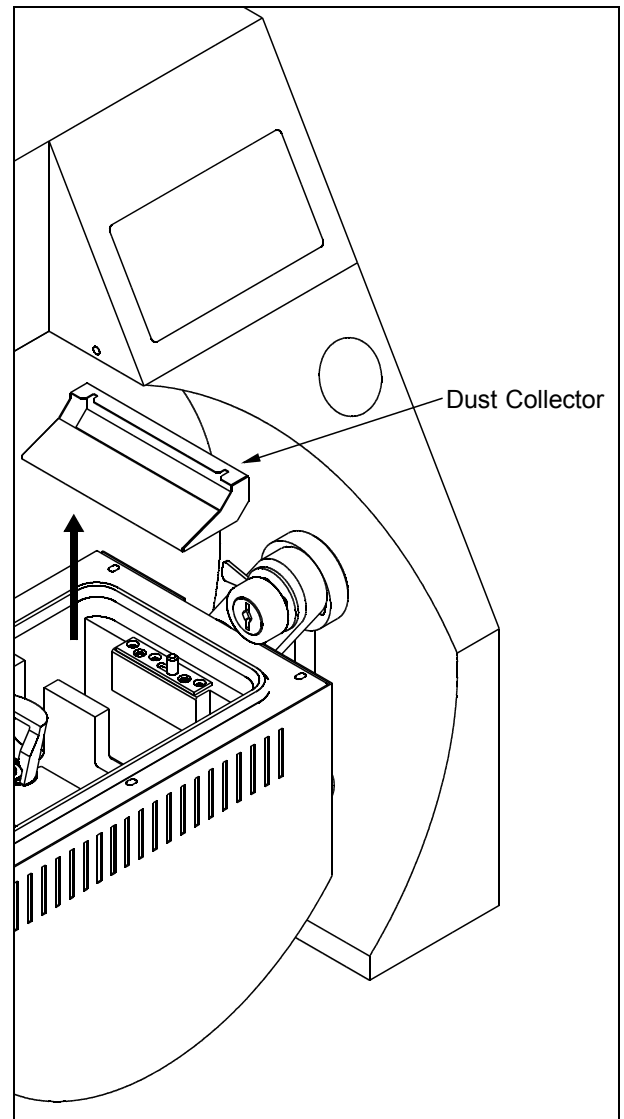
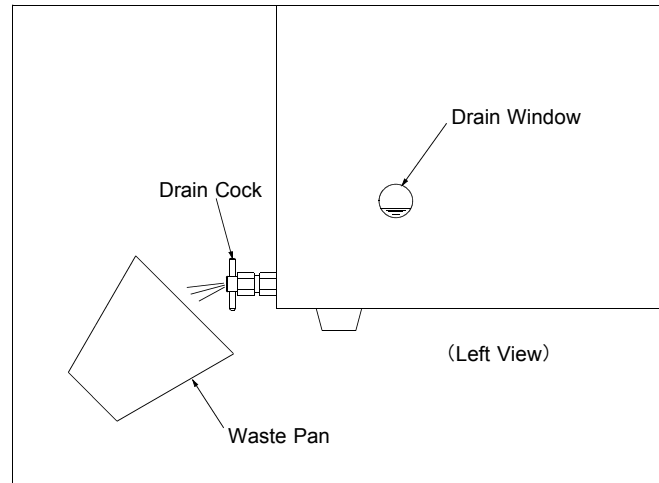


Figure 3

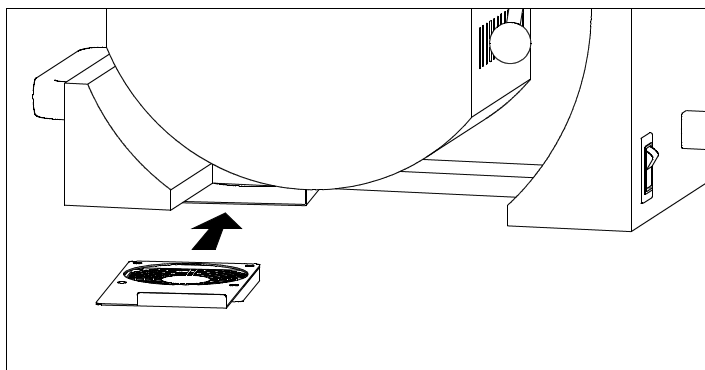
● Drain Filter Check

See the drain window equipped on the left of the unit to check the moisture in the air tank. Loosen the drain cock equipped on the backside of the unit to drain the moisture in the air tank. Loosen the drain cock gently to prevent the moisture from shooting. Use a waste pan to catch the moisture. If you use the unit with moisture collected over the allowable level, the moisture will come in contact with inside of the unit and cause machine malfunction.



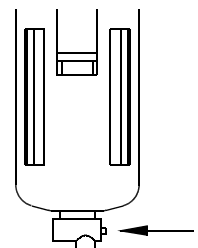
● Dust Proof Filter Cleaning

If you use the unit with the clogged filter, the cooling fan will not work properly and cause overheating of the parts and machine malfunction. Remove the filter that is located on the bottom of the unit to clean the dust with an air gun.

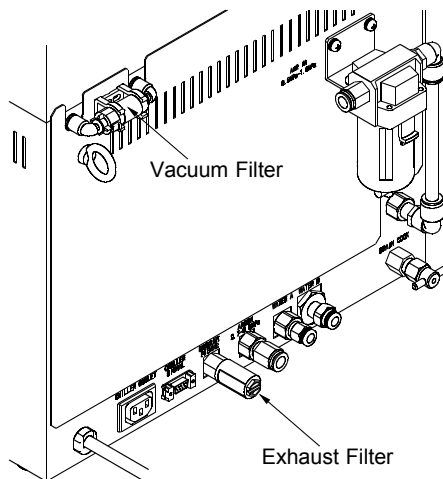


● Compressed Air Filter Check

Press the button at the bottom of compressed air filter (← marked on the right) to drain the moisture gathered inside the compressed air filter. We recommend you to drain the moisture each time before using the unit, regardless of the amount of moisture collected. If you use the unit with the moisture collected over the allowable level, the moisture will come in contact inside the unit to cause machine malfunction when you apply pressure.

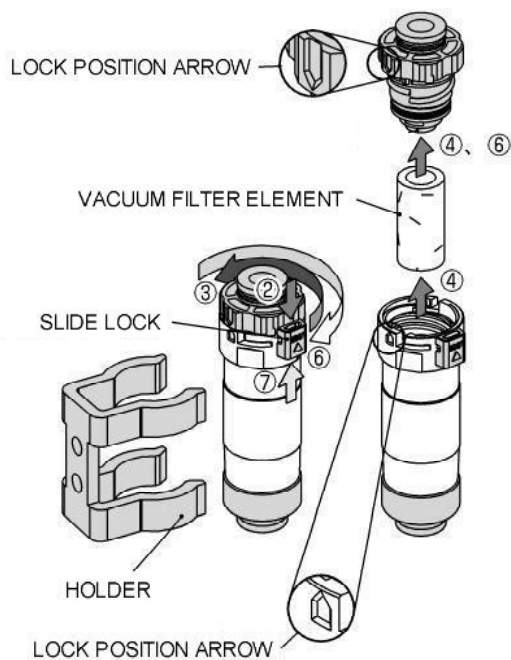


■ Vacuum Filter and the Exhaust Filter Check



In case, vacuum speed is not well, it may be caused by dirty vacuum filter and/or dirty exhaust filter. So, cleaning up the filter or replacing the filter is required. Refer the following process.

● Vacuum Filter Check

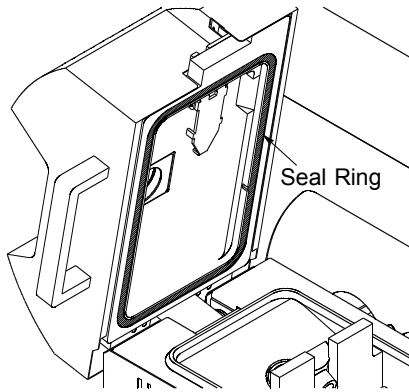


- ① Make sure the pressure gauge is at 0MPa.
- ② Slide the baffle in the direction of arrow to unlock.
- ③ Rotate the cover over 180 degree counterclockwise.
- ④ Remove the case from the cover.
- ⑤ Clean inside of the filter with an air gun or replace the element.
- ⑥ Insert and rotate the cover 180 degree clockwise until it stops.
- ⑦ Turn the baffle back to the lock position and check to lock the cover completely.

● Exhaust Filter Check

- ① Check the pressure gauge is at 0MPa.
- ② Remove the filter and clean it up inside by air-gun or replace with new one.

● Chamber Lid Seal Ring



The dirt on the seal ring may not allow you to reach sufficient vacuum level or vacuum may leak during pressure application. Use a clean wet cloth to wipe the dirt on the seal ring before casting operation.

■ Caution & Warning



When the following messages are displayed, address according to the message. Contact our service team if there is no improvement. The following errors may sometimes be displayed in cases when there is extreme interference. Please turn off the unit and on again to see if the error code persists.

Note) If the errors are not displayed after the unit is turn off and on again, there may be deletion or modification of casting programs and defaults sets.

The followings are considered to be possible source of interference.

- Lighting strikes, • Arc casting machine in the vicinity, • Radio transmitter in the vicinity,
- Induction motor in the vicinity.

● Cautions

※ When the following cautions are displayed, you can skip cautions to use the unit. However we recommend you to maintain and check the unit when errors/cautions are displayed to prevent further malfunctions.

1. Time over of induction

High frequency current carrying time reaches the limited time.

The limited time is 5 minutes. Press any button to return to normal display.

2. Abnormal cooling fan filter

The cooling fan does not work properly. Clean the filter at the bottom of the unit.

When there is no improvement, replacement of the fan may be required.

Press any button to return to normal display. However we recommend you to maintain the unit promptly.

3. Water Overheating

When using the optional chiller, chiller water temperature is overheating.

Wait for 10 minutes to use the unit. When it is often displayed than before, clean the chiller filter.

※ If room temperature is high, there is a high possibility of this caution.

● Warnings

※ When the “ERROR” lamp illuminates, you cannot use the unit. Repair it according to provided solutions. If there is no improvement, contact our support team.

No.00	Cause: The optional chiller is abnormal.	No.01	Cause: Water is leaking in the unit.
	Solution: Check the connection of outlet and signal terminals.		Solution: Stop using the unit immediately. Contact our support team for repair.
No.02	Cause: Water is leaking in the optional chiller.	No.03	Cause: Chiller water is below required amount.
	Solution: Stop using the optional chiller. Contact our support team for repair. ※ The poor connection of the signal terminals may cause this warning.		Solution: Check the amount of the chiller water and add coolant or water if necessary. ※ The poor connection of the signal terminals may cause this warning.
No.04	Cause: Chiller water is not flowing.	No.05	Cause: The muffle chamber does not invert to the casting position.
	Solution: Check the bend of piping of optional chiller or tap water or the flowing of tap water. ※ The poor connection of the signal terminals may cause this warning.		Solution: Check if any objects interfere with inverting the chamber.
No.06	Cause: The muffle chamber does not invert to the melting position.	No.10	Cause: The overcurrent of high frequency power.
	Solution: Check if any objects interfere with inverting the chamber.		Solution: The noise may occur this warning. If this warning is often displayed, contact our support team for repair.
No.11	Cause: The protective circuit of high frequency power is operated.	No.12	Cause: High frequency is not output.
	Solution: The noise may occur this warning. If this warning is often displayed, contact our support team for repair.		Solution: High frequency power may malfunction. Contact our support team.
No.14	Cause: It cannot measure power frequency.	No.15	Cause: The power supply voltage is out of range.
	Solution: High frequency power may malfunction. Contact our support team.		Solution: The unit can work with single-phase, 220-240V and 20A. Check the power supply voltage and allowable current.
No.16	Cause: The memory data is damaged.	No.17 No.21	Cause: The control board is abnormal.
	Solution: The noise may cause data damage or change memory. Check the memory.		Solution: If this warning is often displayed, contact our support team for repair.
No.18	Cause: The high frequency power board is abnormal.		
	Solution: If this warning is often displayed, contact our support team for repair.		

■ Optional Items

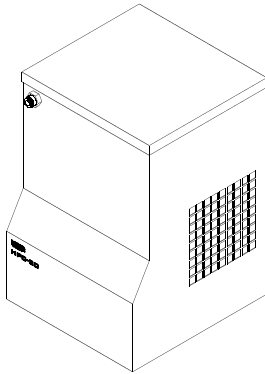


The water connection part (DW-60) or optional chiller (HPC-20) is strictly required to use the unit. The expanded chiller (HPC-40) is available when the HPC-20 is connected.

- Water connection part Type : DW-60

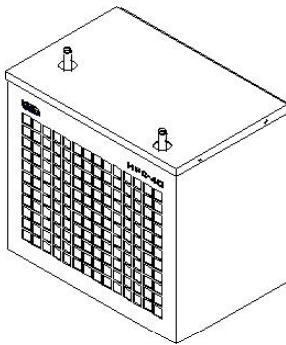
This part is used to connect tap water to the unit to cool with tap water.

- Optional chiller Type : HPC-20



This chiller is used when you do not connect tap water for cooling. Water can be stored and cooled in internal tank. The connection of the expanded chiller (HPC-40) is available.

- Expanded chiller Type : HPC-40



Expanded Chiller (HPC-40) for continuous castings.

Note) The optional chiller is required to connect this chiller.

■ Consumable

The following consumables are sold separately.

Item	Qty
Melting Alloy Outlet	10pcs
Carbon Crucible S	10pcs
Carbon Crucible L	5pcs
Ceramic Crucible	10+1pc
R5 Casting Ring (dia.43 x H60mm)	3pcs
R6 Casting Ring (dia.60 x H65mm)	3pcs
R7 Casting Ring (dia.76 x H70mm)	2pcs
R8 Casting Ring (dia.90 x H70mm)	1pc
PR82 Plastic Ring	2pcs
PR92 Plastic Ring	2pcs
SF43 Base Former (for R5 ring)	3pcs
SF60 Base Former (for R6 ring)	3pcs
SF76 Base Former (for R7 ring)	2pcs
SF90 Base Former (for R8 ring)	1pc
PF82 Base Former (for PR82 ring)	2pcs
PF92 Base Former (for PR92 ring)	2pcs
Crucible Former	100pcs

■ Specifications

Power Requirement	AC220-240V \pm 10% 50/60Hz
Power Consumption	3.5kVA Max.
Overall Dimensions	560W \times 490H \times 490Dmm not including a projection.
Weight	42kg
Environment for setup	Temperature 0 \sim 40 $^{\circ}$ C Humidity 30 \sim 90 % (not condensing) Altitude Max. 2000m
Alloy Melting Method	High Frequency Induction Heating
Cooling System	Optional Chiller or Direct Connect Water
Casting Method	Chamber Inverting Vacuum and Pressure Casting
Operation Panel	Intuitive Panel
Compressed Air Pressure	0.5 \sim 1.0MPa
Argon Gas Pressure	0.5 \sim 1.0MPa
Pressurized Atmosphere	Air or Argon Gas Atmosphere
Pressurized Pressure	0.35MPa, Fixed
Usable Casting Ring	Standard Ring: Max. dia.90 \times H70mm Min.dia.34 \times H50mm
Type of Crucibles	Ceramic Crucible Life 15 \sim 30 times Carbon Crucible Life 10 \sim 20 times ※ Crucible life depends on use conditions.
Maximum Temperature	1650 $^{\circ}$ C
Alloy Melting Quantity	Cobalt Chrome: 10 \sim 60g Gold: 10 \sim 60g less than 5cm ³ when use carbon crucible S. 10 \sim 120g less than 10cm ³ when use carbon crucible L.
High Frequency	
Conduction Time	Max. 5min.
Melting Time	Melting within 3 minutes for 60g of cobalt chrome.

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