

CODE 044660-152
044660-202

Circulating Aspirator

WJ-15 / WJ-20

Operation manual

With Warranty

Thank you for purchasing this product.

Be sure to read this operation manual before use.

Handle this product in accordance with the explanations described in this manual.

After reading this operation manual, keep it in a safe place where it can be referred to at any time.

If you find any unclear points in this manual, please contact your Sibata agent.

 **SIBATA SCIENTIFIC TECHNOLOGY LTD.**



Using the Product Correctly and Safely

To ensure correct use, read this operation manual thoroughly before handling this product. In addition, keep this manual in an easily accessible location.

■ Users (Important)

This product must be operated only by persons with adequate specialist skills, training, and experience to understand the potential dangers of operating the product. Persons who are untrained or still undergoing training may operate the product only under guidance from a trained person or a person with specialized experience.

This operation manual was written on the assumption that the product will be operated only by users who fully understand the potential dangers of operating the product.



Before Using the Product

(Be sure to read this, and handle this product with due care.)

- Install this product horizontally at a stable location.
- Be sure to connect the power cord grounding wire.
- This product is not explosion-proofed, so do not use it in the vicinity of combustible or flammable substances.
- [Modifications and Repairs Are Prohibited] Never disassemble or modify this product, as doing so will void the warranty with Sibata. Doing so may also result in unforeseen faults and accidents.
- If a fault occurs, request repairs immediately. Never leave the fault as is, or attempt your own repairs, as subsequent use may result in unforeseen accidents.
- If the product becomes dirty, wipe away the dirt with a soft cloth (soaked in detergent if there is significant dirt).
- If the product emits smoke, or the product makes a strange noise, stop using it immediately. Turn OFF the power switch, remove the power plug from the power outlet, and request repairs.
- When removing the power plug from the outlet, hold the cord by the power plug to avoid pulling on the power cord. Be sure your hands are dry before handling the power cord. Otherwise, there is a risk of electric shocks.
- Do not bend, stretch, or twist the cord. Do not connect it to a different cord.
- If you notice that the cord has become damaged, or broken, or the plug does not connect properly, stop using it immediately, and request repairs.

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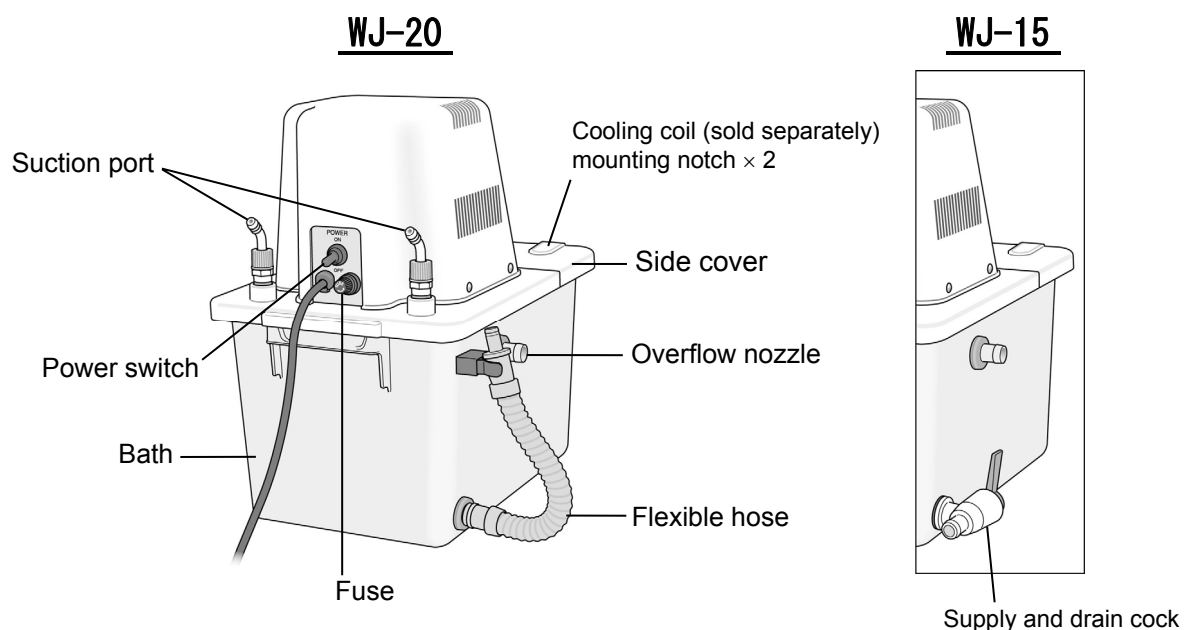
1 Overview

The WJ-15 and WJ-20 models are high-performance aspirators that can be used without connecting directly to a water faucet. They offer significantly improved exhausting performance compared with traditional aspirators. Their unique construction prevents the sucking in of air, and in addition it suppresses noise and has superior durability. They are vacuum units that can be easily installed anywhere and feature a compact design that makes them easy to carry.

2 Specifications

Model	WJ-15	WJ-20
Performance	12 to 15 L/min × 2 pcs	
Reachable Vacuum	1.2 kPa (10 °C), 2.3 kPa (20 °C), 4.2 kPa (30 °C)	
Bath	Polypropylene 10 L	
Suction Port	Hose nozzle 10 mm O.D. × 2 pcs	
Water-Jet Pump (Aspirator)	Metal (brass) × 2 pcs	
Circulating Pump	Glass fiber-filled polypropylene	
	Condenser start-up motor	
	100 V AC 50/60 Hz 100/150 W	
Supply and Drain Port	Supply and drain cock (17 mm dia.)	Flexible hose (12 mm dia.)
	Overflow nozzle (17 mm dia.)	
Power supply	100 V AC 50/60 Hz 2.0/2.7 A	
Dimensions	255 (W) × 360 (D) × 415 (H) mm (not including protrusions)	
Weight	Approx. 7.4 kg	
Accessories	GL-14 Hose nozzle × 2 pcs, Y-shaped branch pipe × 1 pc, outlet adapter × 1 pc, Cartridge fuse (6.4 dia. × 30 mm 5 A) × 1 pc	
Product code	044660-152	044660-202

3 Structure



• Precautions When Unpacking

When unpacking, be sure to remove any packaging material from the bath and check the accessories.

4 How to use

 CAUTION	<p><u>Do NOT turn the main unit upside down when it is lifted from the bath.</u> <u>There is a risk of damage due to water drops getting onto the motor shaft and causing rust on the bearing part.</u></p>
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4-1 Piping for Supply and Drain Line

Connect the main unit to the water faucet using a hose.

When the unit is operated for long periods, the water temperature in the bath rises and the suction force drops. If the gas sucked in by the unit is harmless and not concerned with regulations on drainage, then supply tap water to the bath to control the rise in the water temperature.

If the gas sucked in by the unit is regulated in any way (regulations on drainage or indoor environment) or harmful, then depending on the type of gas, take countermeasures or perform pre-processing*.

*** Example of Pre-Processing**

- (1) Reduce the temperature of the bath using the optional cooling coil.
- (2) Prepare a cold trap in front of the suction port and collect the exhaust gas so that none is introduced into the bath.

Note that, if organic solvents are contained, the performance will decrease. Also, be sure to clean the bath after use. Not doing so may cause a malfunction. (Be sure to handle the waste liquid in accordance with the law when cleaning the bath.)

■ WJ-15

- (1) Connect one end of a hose to the supply and drain cock and the other end to a water faucet.
 - **The water in the hose is under pressure, so secure it with a hose band or other fixing items.**
- (2) Connect another hose to the overflow nozzle and lead it to a drain such as a sink.

■ WJ-20

- (1) Be sure to remove the flexible hose from the hose hook.
- (2) Connect one end of a hose to the flexible hose tip and connect the other end to a water faucet.
 - **The water in the hose is under pressure, so secure it with a hose band or other fixing items.**
- (3) Connect another hose to the overflow nozzle and lead it to a drain such as a sink.

Note: If the hose is kinked or if liquid collects in the middle, liquid may not overflow correctly.

4-2 Piping for Pressure-Reducing Line

Connect the suction port to the equipment being used (a pressure reducer such as filter) with a vacuum hose.

When doing this, connect the suction port so that it is not left open.

Operating the unit with one or both ends of a suction port open may cause water splashes or cause water to overflow outside the bath. There may also be cases where the pump idles due to the air suction causing damage. With the Y-shaped branch pipe accessory, use two suction ports at the same time, or cover the unused port pipe if it is not used.

When the equipment being used is only one, then if the Y-shaped branch pipe is used to make two suction ports into one, the exhaust time can be reduced.

If the circulating aspirator is operated continuously, and only the equipment being used is vented, then place a three-way cock in the piping.

4-3 Operation

(1) Open the faucet and let water into the bath. It is recommended to aim for an overflow rate of approx. 1 to 2 L of water per minute.

(2) Confirm that the power switch is OFF and then connect the power cord to an electrical outlet (100 V AC).

(3) Turn the power switch ON and start the operation.

When doing this, confirm, by closing the suction port with a finger, that suction pressure is generated. When there is a difference in the left and right suction pressure and the water jet strength, confirm that the vacuum hose in the bath (indicated as (9) in ■ Pump and Aspirator of section 6) is not kinked.

(4) If pressure-reducing performance falls while running due to a rise in the water temperature, then increase the amount of water overflow, or put a cooling coil (optional) or ice in to maintain a low temperature in the bath.

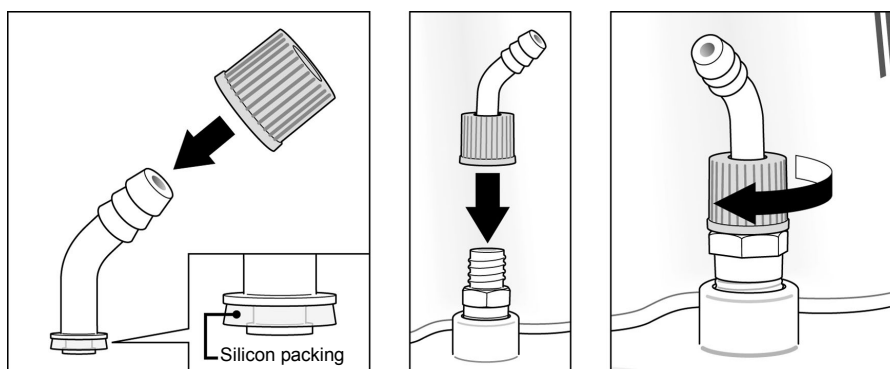
(5) Operating the suction port (GL-14 Horse nozzle)

The suction port uses a GL-14 horse nozzle.

GL-14 horse nozzle set up hole cap and check packing assembled.

Cap attach nozzle junction of GL-14 by make right hand turn.

This is useful if you leave the coupler on the vacuum hose when you remove it and want to connect it again.



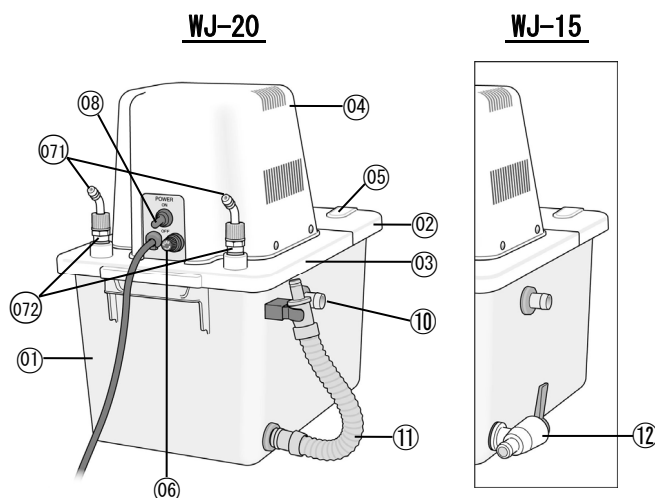
- Please check silicon packing assembled.

5 Handling Precautions

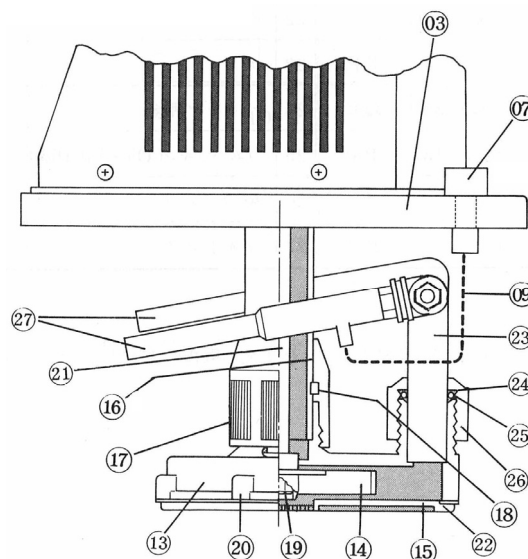
- (1) When operating the unit for long periods, be sure to allow the water in the bath to overflow. If overflow is not possible due to drainage conditions, depending on the frequency of use, replace the water in the bath or use the (optional) cooling coil.
- (2) When suctioning organic solvent and corrosive gases, prepare a pre-treatment trap or other means and be sure to clean the unit after use. Dispose of water from the bath and from cleaning liquids in accordance with the ordinances.
- (3) This unit uses the materials shown in section " 6 Exploded View of Circulating Aspirator ". Do NOT suction in any gases that affect these materials.
- (4) Clean the bath regularly. If there is any foreign object in the bath, not only will the suction of the aspirator or pump be reduced, but also they may cause a motor damage.
- (5) Be sure to ground the power supply properly.
- (6) Never run the pump unloaded. Doing so will cause a malfunction.
- (7) Leave the suction port open when the operation stops. Note that although the aspirator is fitted with a backflow prevention valve, water will gradually flow back into the bath when it is left under reduced pressure. Also, when the operation was continuous water flow, turn OFF the tap water as well.
- (8) Do NOT turn the unit upside down when you lift it from the bath. There is a risk of damage due to water drops getting onto the motor shaft and causing rust on the bearing part.

6 Exploded View of Circulating Aspirator

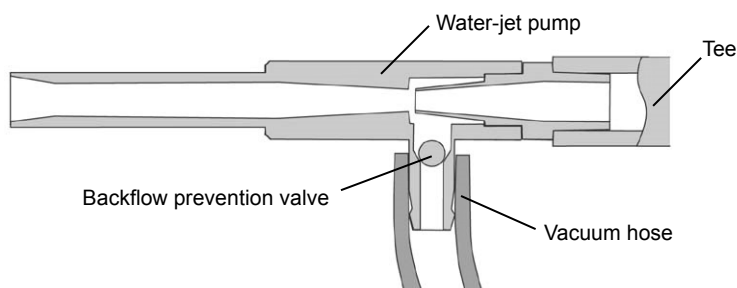
■ External Appearance



■ Pump and Aspirator



■ Water-Jet Pump Structure



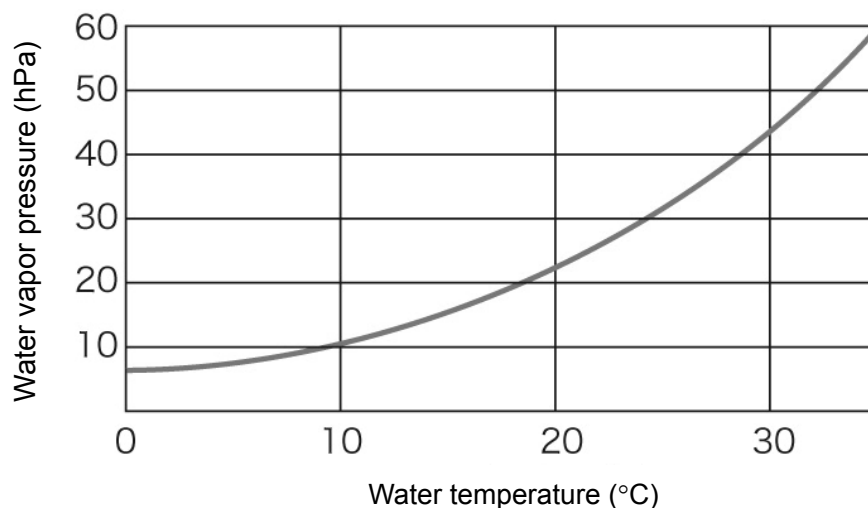
External Appearance		
No.	Name	Material
01	Bath	PP
02	Side cover	ABS
03	Motor strike plate	ABS
04	Motor cover	ABS
05	Cooling coil mounting notch	ABS
06	Cartridge fuse (5 A)	
071	GL-14 horse nozzle	PP, Silicon
072	Nozzle junction of GL-14	PP
08	Power switch	
09	Vacuum hose 6 dia. × 15 dia. × 300 mm	Plastic elastomer
10	Hose inlet (Overflow nozzle)	PP
11	Flexible hose	PVC
12	Supply and drain cock	PP
	Y-shaped branch pipe	PP

Pump and Aspirator		
No.	Name	Material
13	Pump casing	Glass fiber-filled PP
14	Impeller	Glass fiber-filled PP
15	Casing cover	Glass fiber-filled PP
16	Connecting pipe	SUS304
17	Pipe socket	Glass fiber-filled PP
18	Pipe bush	PVC
19	Hexagon nut	SUS304
20	Plaster pin screw	SUS304
21	Motor shaft	SUS304
22	Casing packing	Viton
23	Tee	PET black
24	Packing gland	PVC
25	Rubber packing (O-ring shape 16 dia.)	Viton
26	Cap nut	Glass fiber-filled PP
27	Water-jet pump	BS

Note: When using erosive solvents, see the materials table above and to "Handling Precautions" before use.

7 Relationship Between Temperature and Suction Force

Note: The water vapor pressure at that temperature limits the degree of vacuum attained, and the suction force of the unit is proportional to this.

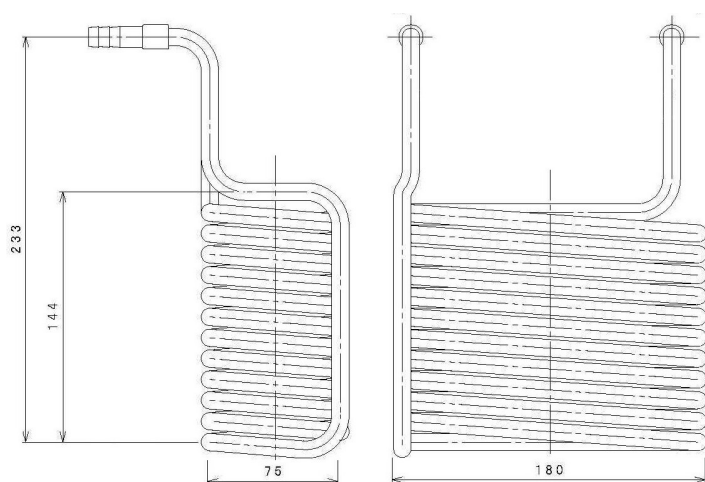


(The values in this graph are approximate.)

8 Options

■ Cooling Coil

The cooling unit is made of copper. By connecting this to your cooling water circulation system, the temperature of the water in the bath can be kept at low temperature and a stable suction force can be obtained.



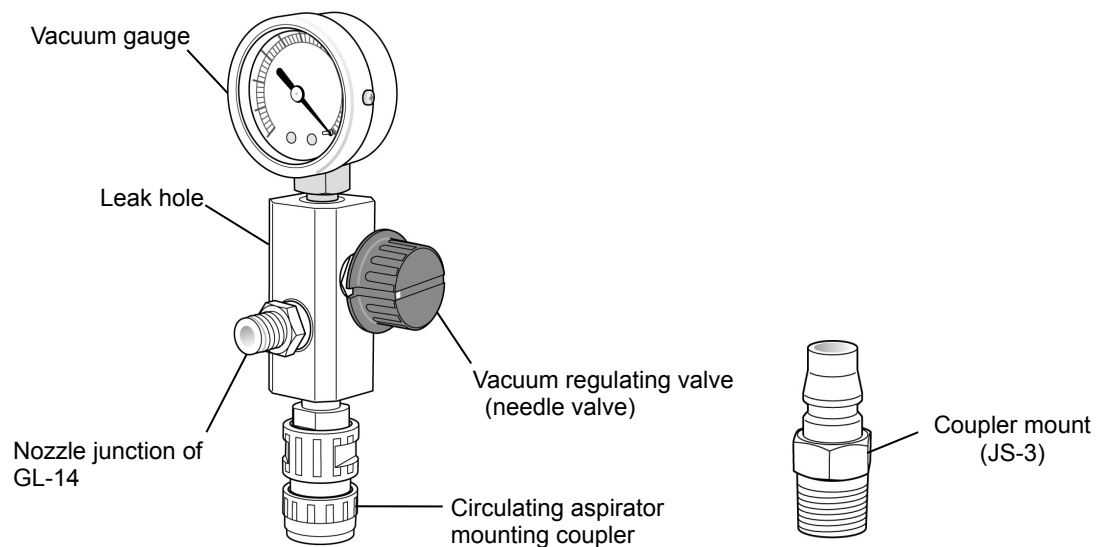
<How to use>

Cut out the two cooling coil mounting notches on the circulating aspirator. Put the cooling coil in the bath, close the lid, and connect it to your cooling water circulation system with a hose or other piping.

<Specifications>

Coil Material	Nickel Plated Copper
Hose connector Outer diameter	12 mm dia.
Weight	Approx. 1 kg
Product code	044660-061

■ Vacuum Regulator

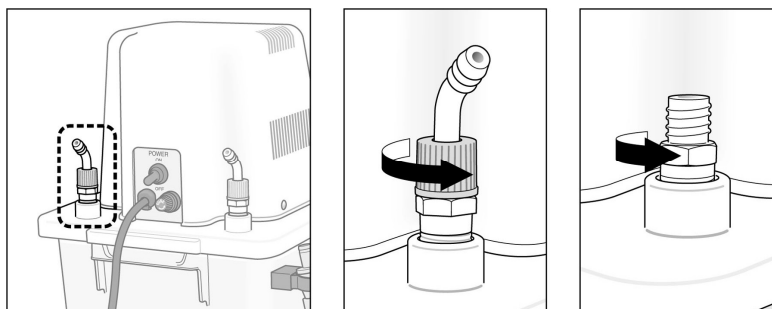


<Specifications>

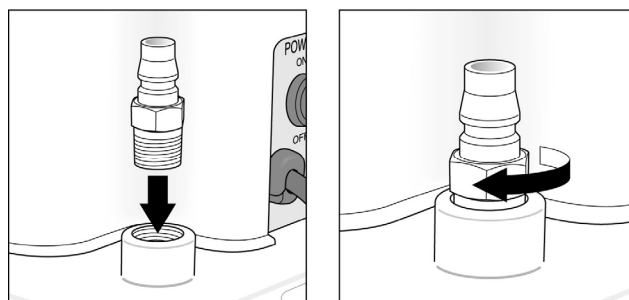
Measured Pressure	Gauge pressure	
Scale Range	0 to 0.1 MPa	
Material	Main unit	Brass
	Needle	SUS304
Horse connecting port	Coupler	11mm O.D.
	GL-14 Horse nozzle	10mm O.D.
Suction Nozzle	11 mm O.D.	
Dimensions	Approx. 75 (W) × 60 (D) × 180 (H) mm	
Weight	Approx. 0.6 kg	
Accessory	Coupler mount (JS-3)	
Product code	044660-065	

<How to attach>

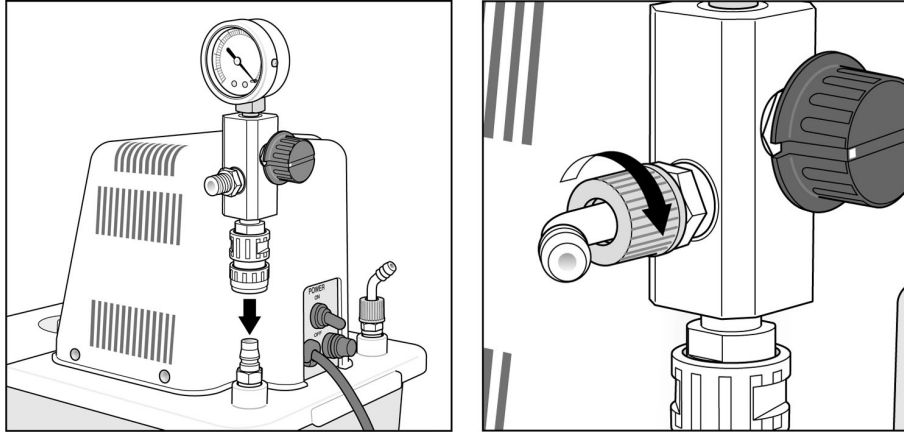
- (1) Remove the GL-14 horse nozzle for the suction port on the left as viewed from the switch part of the circulating aspirator, and nozzle junction of GL-14 by snap (17mm).



- (2) Attach the coupler mount (JS-3) on the removal nozzle junction of GL-14.



- (3) Mount the vacuum regulator on coupler mount (JS-3).
- (4) Mount the GL-14 horse nozzle that you removed in step (1) into the suction nozzle of the vacuum regulator, and with a vacuum hose, connect the GL-14 horse nozzle and the equipment that you are using.



<How to use>

When you turn the vacuum regulating valve (needle valve) fully clockwise, the pressure is reduced to the maximum vacuum of the aspirator. When you turn it counterclockwise, the amount of leakage increases depending on the degree of rotation. Adjust the valve to achieve the desired vacuum.

Handling Precautions

The vacuum regulator adjusts the vacuum by changing the amount of leakage and so, if the leak hole is clogged with dust or other objects, then you will not be able to adjust the vacuum. Clean the leak hole frequently.

9 Troubleshooting

Problem	Cause	Corrective Measures
Motor does not rotate even if the power switch is turned ON.	The fuse is blown.	Replace the fuse.
	The thermal protector is activated.	Wait for the motor to cool, and turn the switch ON again.
	Switch failure.	Replace the switch.
	The bearings are rusted.	Request a repair.
Poor vacuum.	The water temperature is high.	Overflow the bath. Add ice. Use a cooling coil (optional).
	Aspirator is clogged.	Remove and clean it.
	Solvents are dissolved in the water.	Overflow the bath or change the water.
	The vacuum hose is kinked.	Straighten out the kink.
Poor exhaust capacity.	Pump failure. Casing packing leak. Clogged with dust. There are cracks.	Request a repair.
Motor stops during use. (The thermal protector is activated.)	Ambient temperature is too high.	Move location of unit.
	Pump casing is clogged.	Clean it.
Water in the bath flows back out through the suction port when the unit stops running.	The suction port is not left open.	After the unit stops running, open the port as soon as possible.
	Foreign objects are stuck in the backflow prevention valve.	Remove the vacuum hose that is connected to the water-jet pump, and inspect the backflow prevention valve on the water-jet pump side.

15.11.13H(16)

Warranty

1. If a Sibata product fails within the warranty period, it will be repaired free of charge.
The warranty period is 1 year from the date of purchase.
2. Should a failure occur, contact your Sibata representative. In such cases, be sure to provide the product code, product name, model, serial number, and a description of the problem.
3. When making a request for a free of charge repair, be sure to attach a copy of this warranty to the product.
4. Consumable parts included with this product are not covered by the warranty.
5. Naturally occurring failures during the warranty period will be repaired free of charge, but if the cause of the fault is any of the following, a fee will be charged for the repair.
 - 1) Faults or damage resulting from incorrect use
 - 2) Faults or damage resulting from repairs or modifications implemented by parties other than Sibata
 - 3) Faults caused by misuse or insufficient maintenance
 - 4) Faults or damage resulting from fires or natural disasters, such as earthquakes
 - 5) Faults or damage occurring after purchase due to relocation, movement, falling, or vibration
 - 6) Faults or damage resulting from the use of consumable items not specified by Sibata
 - 7) If the warranty has been lost and you are unable to present it
 - 8) If the purchase date or place of purchase have not been entered on the warranty, or if the warranty details have been altered
 - 9) If the warranty period has been exceeded

Product code	044660-152 / 044660-202		
Product name	Circulating Aspirator WJ-15 / WJ-20		
Serial number			
Warranty Period	One year from the date of purchase		
Purchase Date (Year/Month/Day)	/ /		
Address (Work Address)	Postal code		
Name of Employer (Company Name)			
Division (Department, etc.)		Telephone	
Your Name			
Where Purchased (Supplier Name)			

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Note: Due to continuous improvements, the shape, dimensions, specifications, and other aspects are subject to change, to the extent that such changes do not hinder functionality or applications.