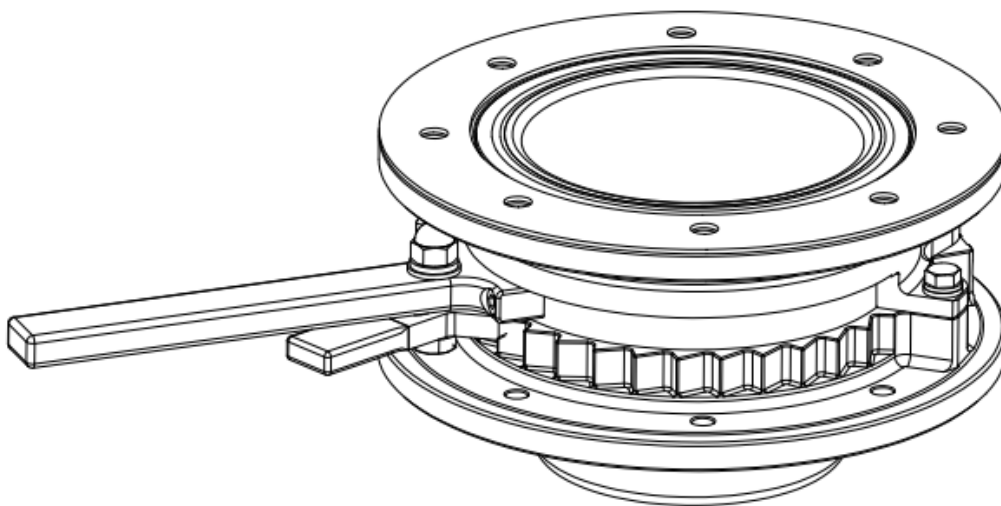




**POWDER DISCHARGE
CONTROL VALVE
IRIS VALVE
(CHOKE VALVES)
OPERATION MANUAL**



EIV100A

EXEN CORPORATION

☆ SAFETY PRECAUTIONS

- ☆ This product is a powder discharge control valve. Be sure to read this operation manual carefully before using the iris valve. After reading, please keep it in a safe place where you can always find it and use it.
- ☆ Be sure to read and understand this operation manual carefully before using the product so that it can be operated safely and efficiently. Improper use of product may result in injury or product failure. Keep this manual for further reference. Also, if you are using the piston vibrator EPV25 as a discharge support mechanism, please read the operation manual carefully.
- ☆ The contents and specifications in this document are subject to change without notice due to improvement. Furthermore, although every effort has been made to ensure the accuracy of the contents of this document, in the unlikely event that you find an omission or have any questions, please contact your nearest sales office or distributor.
- ☆ Please note that we cannot hold any responsibility for any malfunctions or defects arising from improper use of this product.
- ☆ The flange of this product conforms to Japanese standards (JIS standards) but not to other standards.
- ☆ The following symbols are DANGER, WARNING, and CAUTION instruction for the use of this product so that the product will not cause harm or damage to users or others.

	DANGER	【DANGER】 indicates an imminent dangerous situation which may lead to death or serious injury.
	WARNING	【WARNING】 refers to a hazard that may cause death or serious injury.
	CAUTION	【CAUTION】 refers to a hazard that may cause minor or moderate injury.



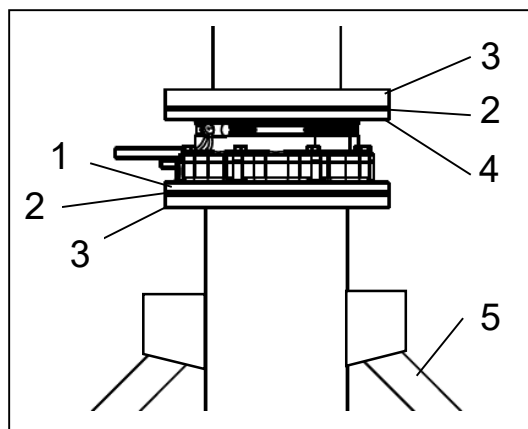
CAUTION

(To prevent injury or damages)

- ⚠ This product consists of two parts the flange case top and the flange case lower. The top and lower flange cases are fastened with five bolts. When connecting pipe, reinforce the pipe by supporting it with a strut bracket or other means to prevent direct load from being applied to the product.

- ⚠ When installing this product, be sure to attach a gasket to the flange surface. If the gasket is not attached, there is a risk of powder leaked to outside.

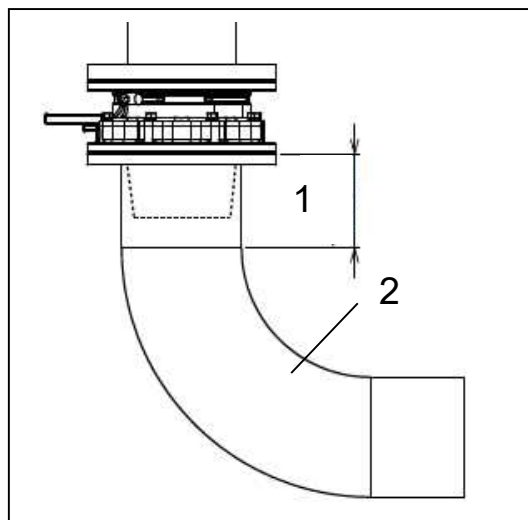
NOTE : The included gasket is for JIS 5K100A flat face (FF.)
Cannot be used for raised face (RF.)



- ▶ 1. Flange case lower 2. Gasket
3. Flange 4. Flange case top
5. Strut bracket

- ⚠ When connecting the secondary side (Discharge side) of this product with a curved pipe, please provide a straight section of 100 mm or more.

When the valve is fully open, the sleeve valve may interfere with the curved pipe.



- ▶ 1. 100mm or more
2. Secondary side (Discharge side)

- ⚠ Installation and removal of this product and optional parts must be performed when the powder discharge is completely stopped. It may cause accidents or injuries.
- ⚠ Securely fasten the flange of this product to the flange of the hopper or pipe. Insufficient installation may cause the unit to fall and result in injury.

○ INTRODUCTION

Thank you for purchasing the powder discharge control valve.

Be sure to read this operation manual before use.

Be sure to read and understand this operation manual carefully before using the product until it can be operated safely and efficiently. Handle and maintain it appropriately for safety operation. Keep this manual for further reference.

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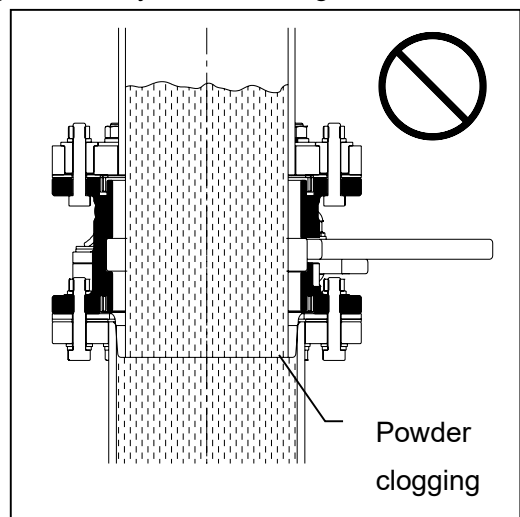
○ SAFETY



(For personal protection during operation)

- Keep work area is well lit. Working in a dark area invite accidents.
- Do not ride on or place heavy objects on this product.
It may cause accidents or injuries due to damage, deformation, or falling.
- When installing or removing this product or its optional parts, ensure you have a stable footing.
- When installing or removing this product and optional parts, make sure that the surface temperature of the hopper and pipe is at a temperature that can be touched by hand.
- Before use, thoroughly inspect the parts for any damage or breakage, and ensure that the bolts are not loose.
- Before use, check that no tools are left attached to the machine, hopper, or pipe.
- When operating the handle, be careful not to get your fingers caught in the sliding part.
- Do not put your hands into the sleeve valve while discharging powder.
- Always operate the handle when there is no powder in it or when it is flowing. Operating the handle (open/close operation) with clogged powder may cause damage to the sleeve valve or twist assembly.

NOTE : Do not operate the handle when the inside is clogged with powder (stationary state.)





(For longer service life)

- Use powder materials that are free-flowing and dry. Do not use powder that contain moisture or are at high temperatures.
- Sandy or abrasive granules can easily damage the sleeve valve material and may cause tear, so please inspect it regularly.
- Operate the valve slowly. If operated forcefully, the sleeve valve may tear, and the twist assembly or handle attachment may be damaged.
- If you try to forcibly discharge powder that are blocked in front of the sleeve valve by repeatedly opening and closing the handle, excessive load may be placed on the parts and cause failure, depending on the degree of force and opening/closing speed.
- When installing this product to a commercially available JIS 5K standard flange, the size of the flange holes and the bolts used may differ, which can cause loosening. Use bolt collars to securely fasten the bolts. Bolt collars are optional.

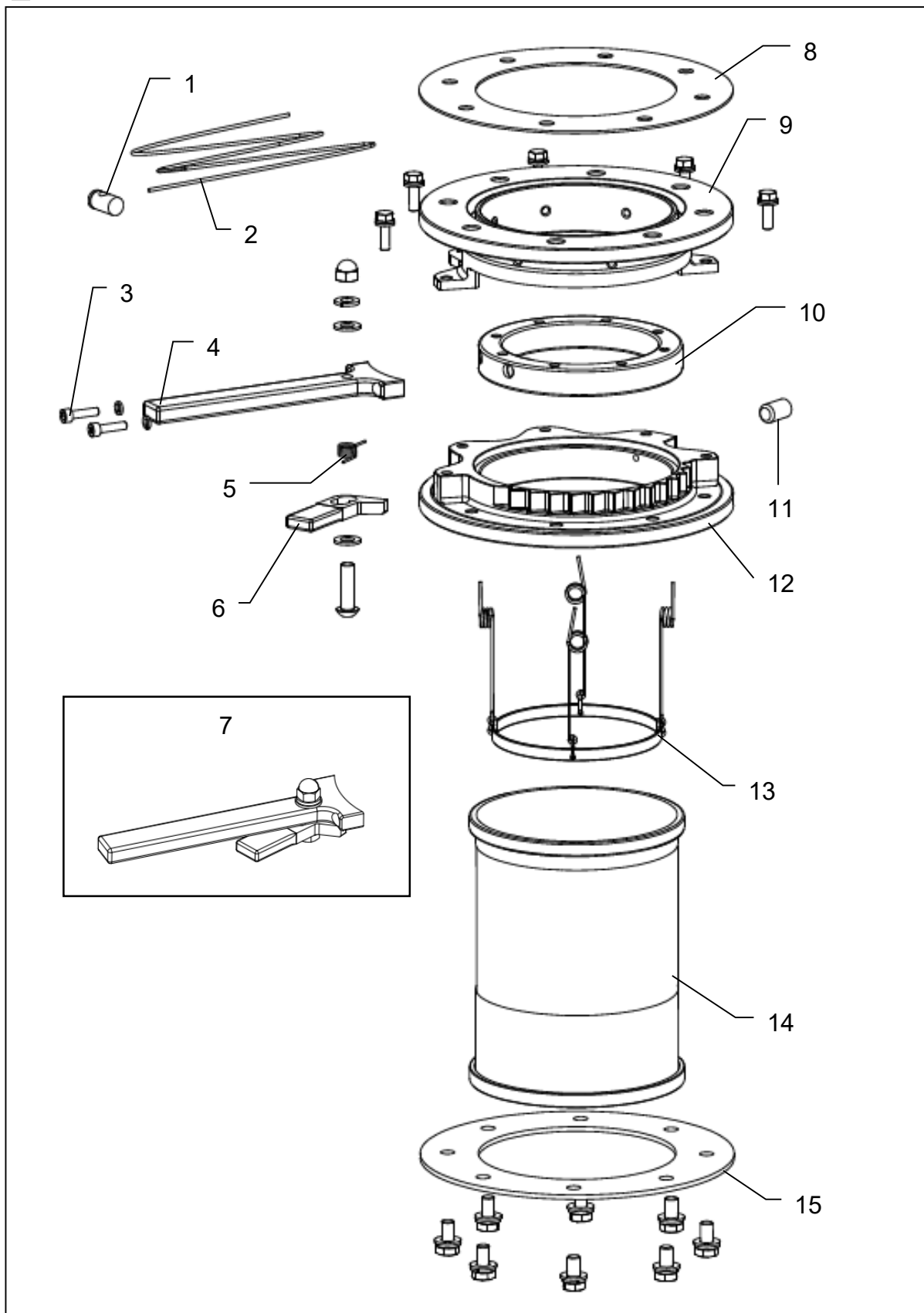
NOTE: For securing the flange of the EIV100A, use M8 bolts.

(Tightening torque : 9 N • m)

- Make sure there are no obstructions to the operation of the handle before doing so.
- Do not handle roughly. It may cause a breakdown.
- After prolonged use of this product, the rope that adjusts the sleeve valve throttle may loosen, leading to reduced control over discharge.
In this case, adjust the tension of the rope regularly. Be careful not to over-tighten the rope, as it may damage the sleeve valve.

○ NAMES OF PARTS

■ EIV100A

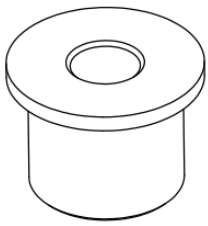
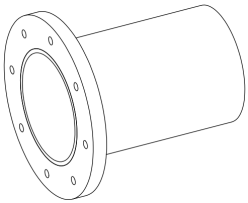
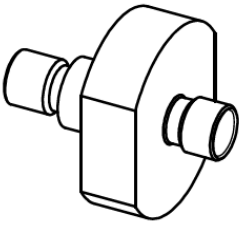


1	Code lock	9	Flange case top
2	Rope	10	Choke ring
3	Handle fixing bolt	11	Set screws
4	Handle	12	Flange case lower
5	Torsion spring	13	Twist assembly
6	Trigger handle	14	Sleeve valve assembly
7	Handle assembly (Manual)	15	Stop flange
8	Gasket	-	-

○ CONNECTION OPTION

- Options and exclusive mounting parts are available for this product to improve the powder discharge performance.

Please use them as needed.

Option parts	Intended use	Specification	Iris valve parts image
Bolt collar M8	Flange bolt size conversion	Material : SUS Size conversion M16→M8	
Discharge base	Secondary side discharge base for EIV100A. Please process the pipe ends yourself to extend the pipe	Material : SUS • Pipe I.D. ϕ 117 • Pipe O.D. ϕ 127 • Pipe length L200	
Mounting base EPV25	EPV25 mounting base for discharge aid	Material : S45C(H) Chromate conversion coating	

○ PIPE CONNECTION

- This product intakes powder from the primary side (input side) and discharges them from the secondary side (discharge side).

When using this product, please refer to the following pipe connections.

- This product uses M8 bolts for mounting on the flange case for both the primary and secondary sides.

When tightening the bolts, the tightening torque must be strictly observed.

Tightening torque for stainless steel bolts: 9 N · m (Strength type 4.6)

- The supplied gasket is for JIS 5K100A flat face (FF).

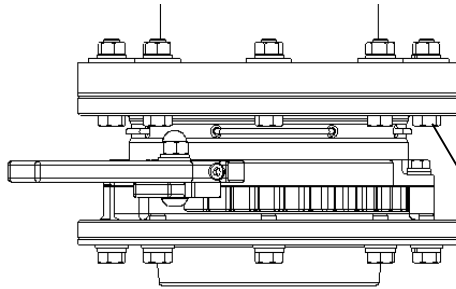
It cannot be used for raised face (RF).

■ Primary side (input side) pipe connection



CAUTION

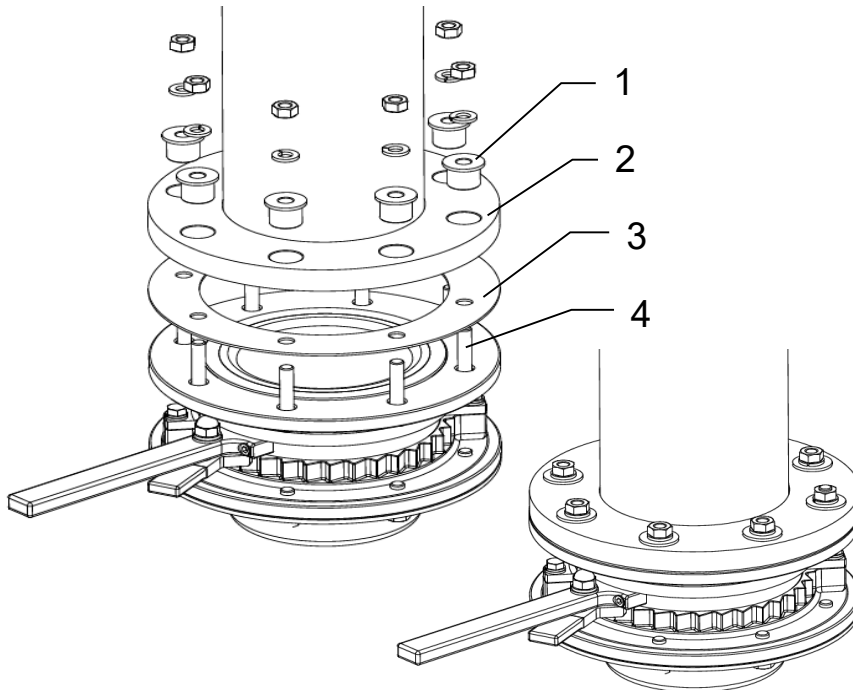
- The bolt on the primary side (input side) should be mounted from the bottom.
Do not use spring washers or washers on the bolt side to prevent interference with the bolt during handle operation.



Spring washers and washers cannot be used on the bolt side.

- If a commercially available JIS 5K flange is used for the primary pipe connection, the use of bolt collars is recommended because the holes in the standard flange and the bolt size to be used are different.

(Bolt collars are optional.)



- ▶ 1. Bolt collar (M16→M8) Option 2. Primary pipe connection. (Flat face (FF))
3. Dedicated gasket (accessory) 4. Bolt M8

■ Secondary side (discharge side) pipe connection



CAUTION

- JIS standard steel pipe 100A (ϕ 114.3) cannot be installed on the discharge side.
- Tightening torque for stainless steel bolt M8: 9 N-m (strength category 4.6)

- When connecting the secondary pipe to this product, the inner diameter of the secondary pipe must also be larger than the outer diameter of the sleeve valve opening.

Cannot be mounted using a commercially available JIS flange.

Use the discharge base designed specifically for EIV100A.

(The exclusive mounting base is optional.)

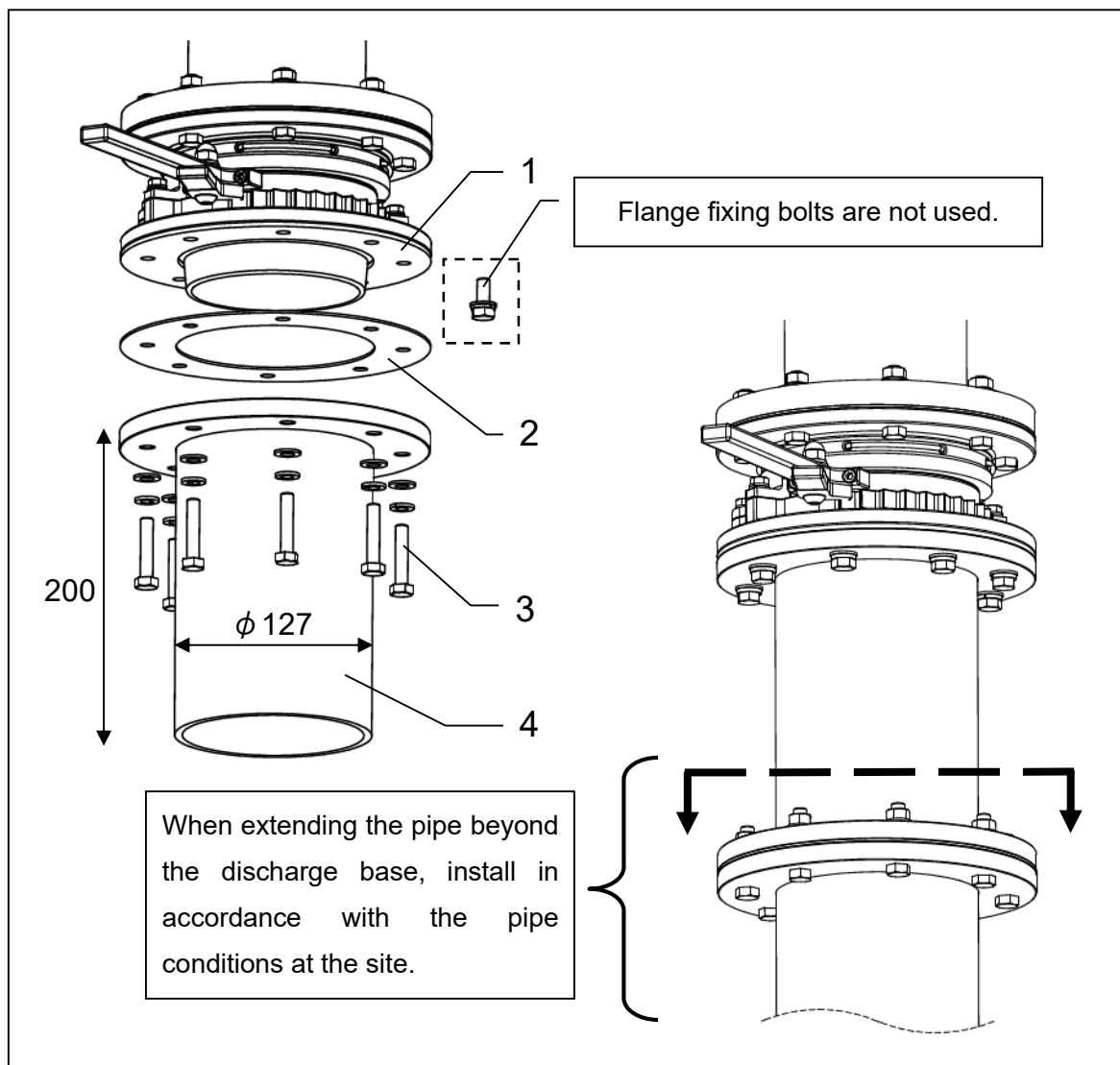
1. When connecting the optional discharge base, remove the fixing bolts (8 bolts) used for the stop flange, mount the stop flange, exclusive gasket, and discharge base on the machine in this order, and fix them with bolts M8 x 30, spring washers, and washers.

NOTE: If bolts exceeding 30 mm in length are used, they may interfere with the bolts when operating the handle.

NOTE: The exclusive gasket should be purchased the same as the gasket for the primary side (input side). In addition, M8x30 bolts, spring washers, and washers must be provided by the customer.

2. When extending the pipe beyond the discharge base, install in accordance with the pipe conditions at the site.

NOTE : When connecting pipe, support and reinforce the pipe with a strut bracket or the like so that no direct load is applied to the unit.



- ▶ 1. Stop flange (accessory) 2. Exclusive gasket 3. Bolt M8X30
4. Discharge base (Option)

○ OPERATION

- The amount of powder discharged can be adjusted by opening and closing the handle.

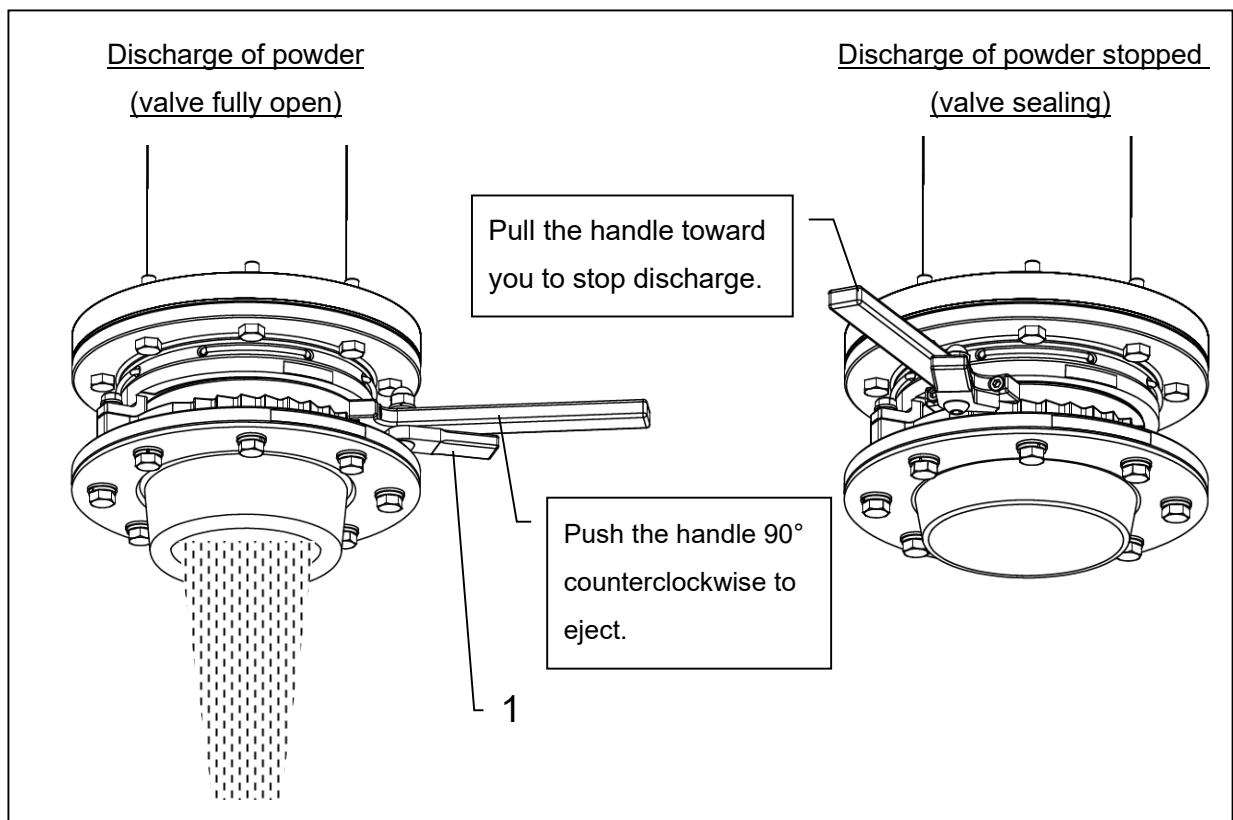


CAUTION

- Do not put your hand inside the sleeve valve while discharging powder.
- Open and close the handle slowly.
- Do not discharge the powder that are blocked in front of the sleeve valve forcibly by opening and closing the handle repeatedly.
- Depending on the properties of the powder, blockages may occur in the hopper cone or pipe on the primary side (input side), and the powder may not be discharged even when the sleeve valve is fully opened.

In such cases, we recommend installing a blockage prevention device in the hopper cone or pipe.

- To fully open, hold the trigger handle and push the handle 90° counterclockwise to open the sleeve valve and discharge the powder.
- To seal the sleeve valve, hold the trigger handle and pull the handle towards you. Pulling it toward you closes the sleeve valve and stops the discharge of powder.
- Ensure that the handle is secured in the proper discharge position.

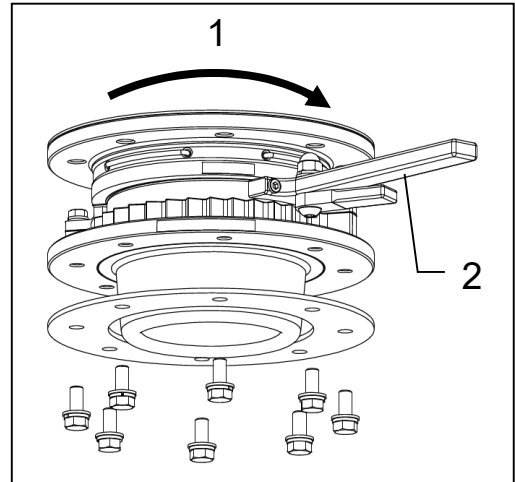


○ HOW TO REPLACE THE SLEEVE VALVE

- If the sleeve valve is torn or dirty and needs to be replaced, please refer to the following procedure for replacement.
- When replacing parts, be sure to remove this product from the pipe.

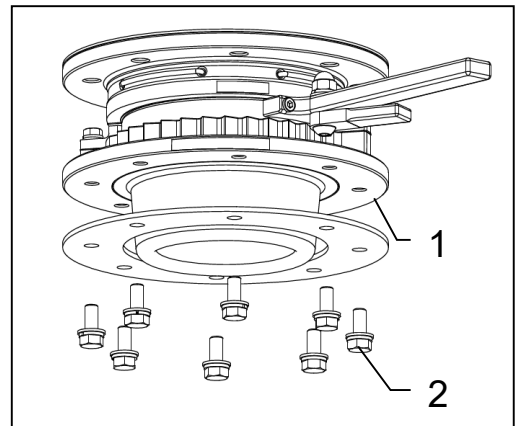
■ How to remove the ring of the sleeve valve

1. Loosen the rope by rotating the handle counterclockwise by 90° .



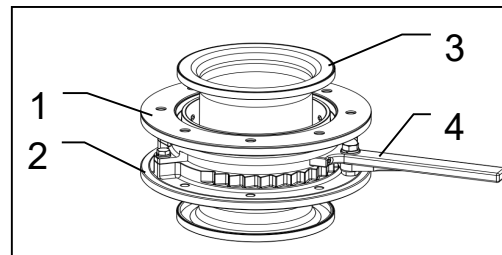
- ▶ 1. 90° turn counterclockwise
- 2. Full open

2. Remove the M8 fixing bolts (8 places) and the stop flange.



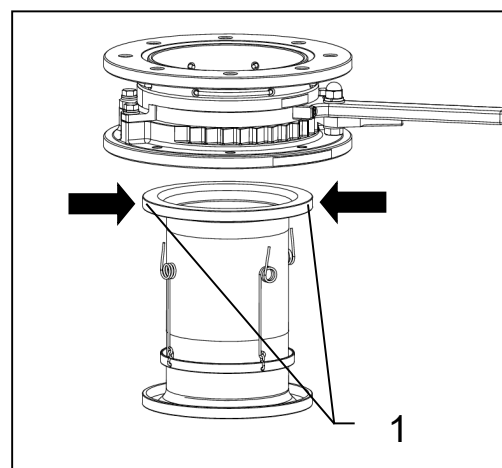
- ▶ 1. Remove the stop flange
- 2. Fixing bolt M8

3. Remove the sleeve valve.



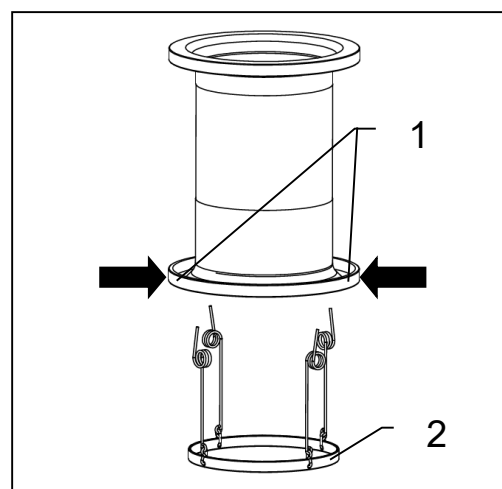
- ▶ 1. Flange case top
- 2. Flange case lower
- 3. Sleeve valve
- 4. Turn the handle 90° counterclockwise (Full open)

4. Remove the sleeve valve and twist assembly from the main body.
To remove, gently deform the end ring of sleeve valve inward by hand.



- ▶ 1. Push

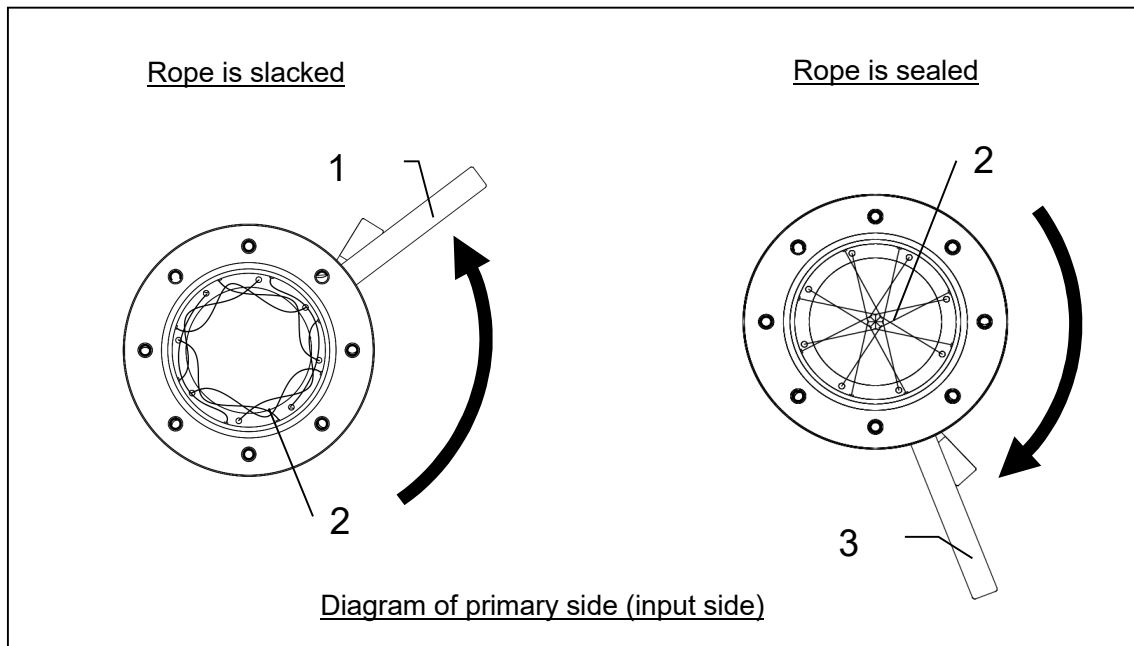
5. Remove the twist assembly from the sleeve valve.
To remove the twist assembly, gently deform the end ring of sleeve valve inward by hand.



- ▶ 1. Push 2. Twist assembly

■ **How to mount the sleeve valve**

1. Before mounting the sleeve valve, turn the handle 90° counterclockwise to allow the rope to slack. Rotating the handle clockwise from the 90° position causes the rope to seal.

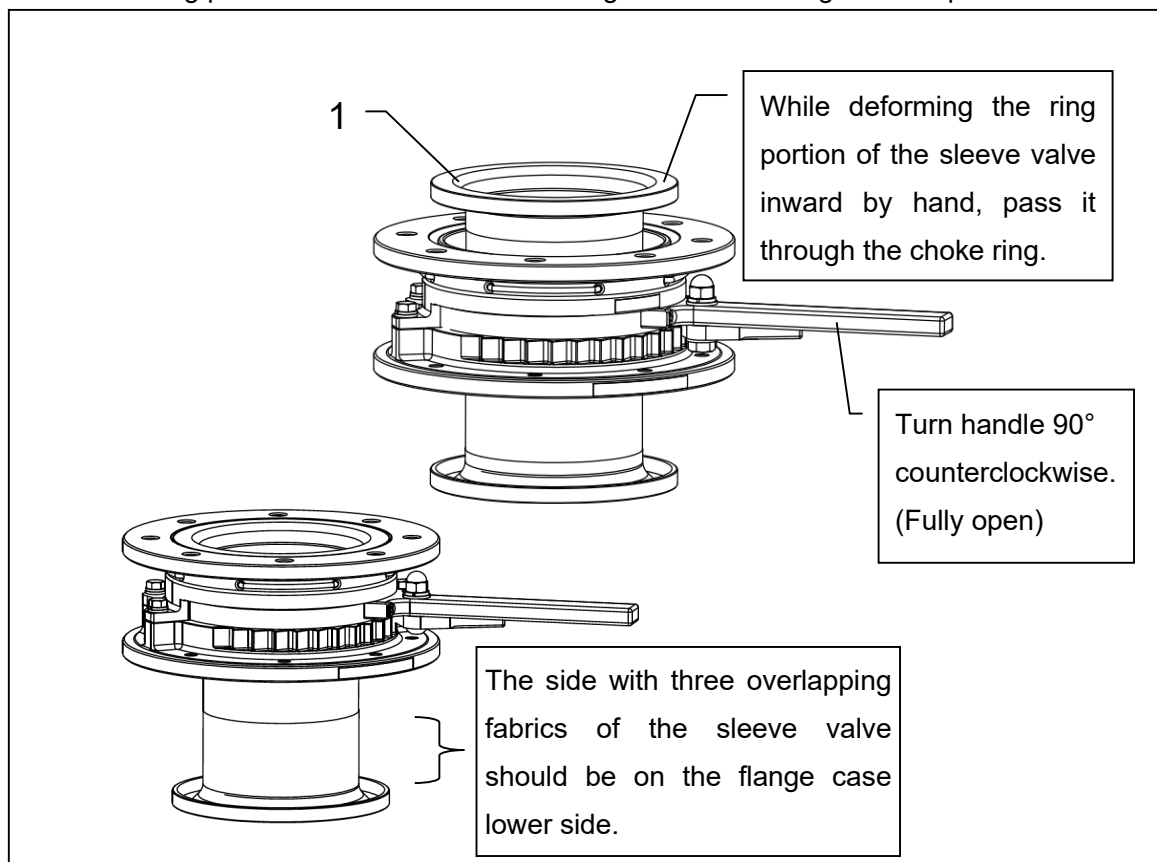


- ▶ 1. Turn 90° counterclockwise 2. Rope 3. Turn 90° clockwise

2. Turn the handle 90° counterclockwise and slack the rope.
3. Pass the sleeve valve through the inside of the choke ring while lightly deforming the end ring section on the opposite side of the sleeve valve from the side where the fabric overlaps by hand.

At this time, the side with three overlapping fabrics should be on the bottom flange side.

4. Fit the ring part of the sleeve valve into the groove in the flange case top.



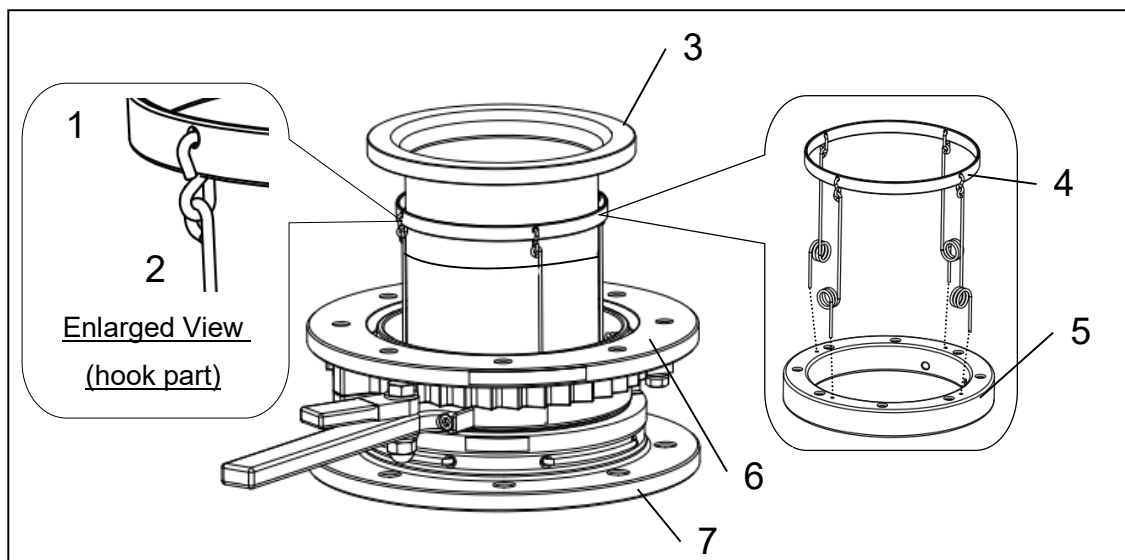
▶ 1. Groove in flange case top

5. With the flange case top facing down, pass the sleeve valve through the twist assembly while crushing the ring end of other sleeve valve inward by hand.

NOTE : If the twist assembly is broken or bent, please replace it in advance.

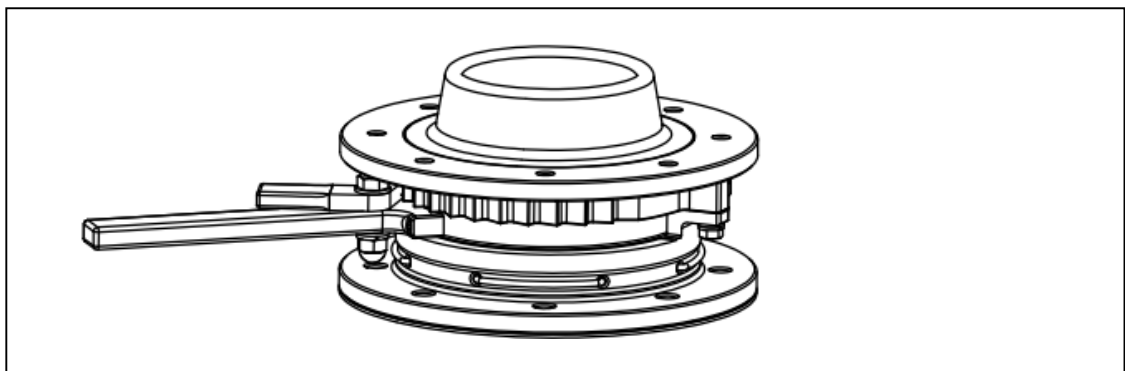
6. Insert the ends of (4) springs of twist assembly into (4) holes of the choke ring.

NOTE : Be careful not to twist the joint between ring and spring of the twisted assembly.



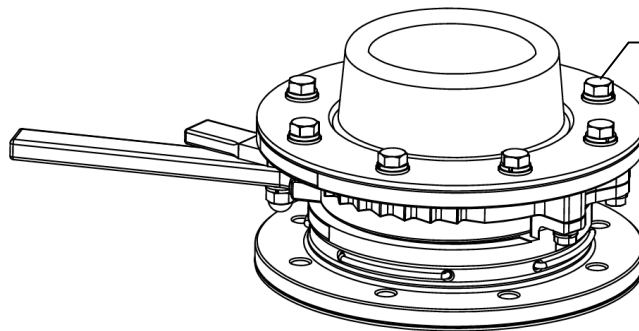
- ▶ 1. Ring 2. Spring 3. Sleeve valve assembly 4. Twist assembly 5. Choke ring
6. Flange case lower 7. Flange case top

7. Cover the twist assembly with a sleeve valve and fit the ring portion of the sleeve valve into the groove of the flange case lower.



8. Place the stop flange on top of the flange case lower and mount with M8 fixing bolt.
(Tightening torque: 9 N · m)

NOTE : Turn the handle several times and confirm that the sleeve valve opens and closes.



Cover with the stop flange and mount with the fixing bolt M8.

Sleeve valve replacement completed

○ POWDER DISCHARGE AUXILIARY MECHANISM



CAUTION

- This discharge assistance mechanism assists in removing powder materials that have adhered to or accumulated around the sleeve valve.

It does not remove powder or grain adhering to the hopper cone or pipe.

(Input side)

- Depending on the properties of the powder or grain, powder or grain may adhere to the sleeve valve.

Our EPV25 piston vibrator can be installed as an assistance mechanism to remove powder or grain that has adhered to or accumulated on the sleeve valve of the machine.

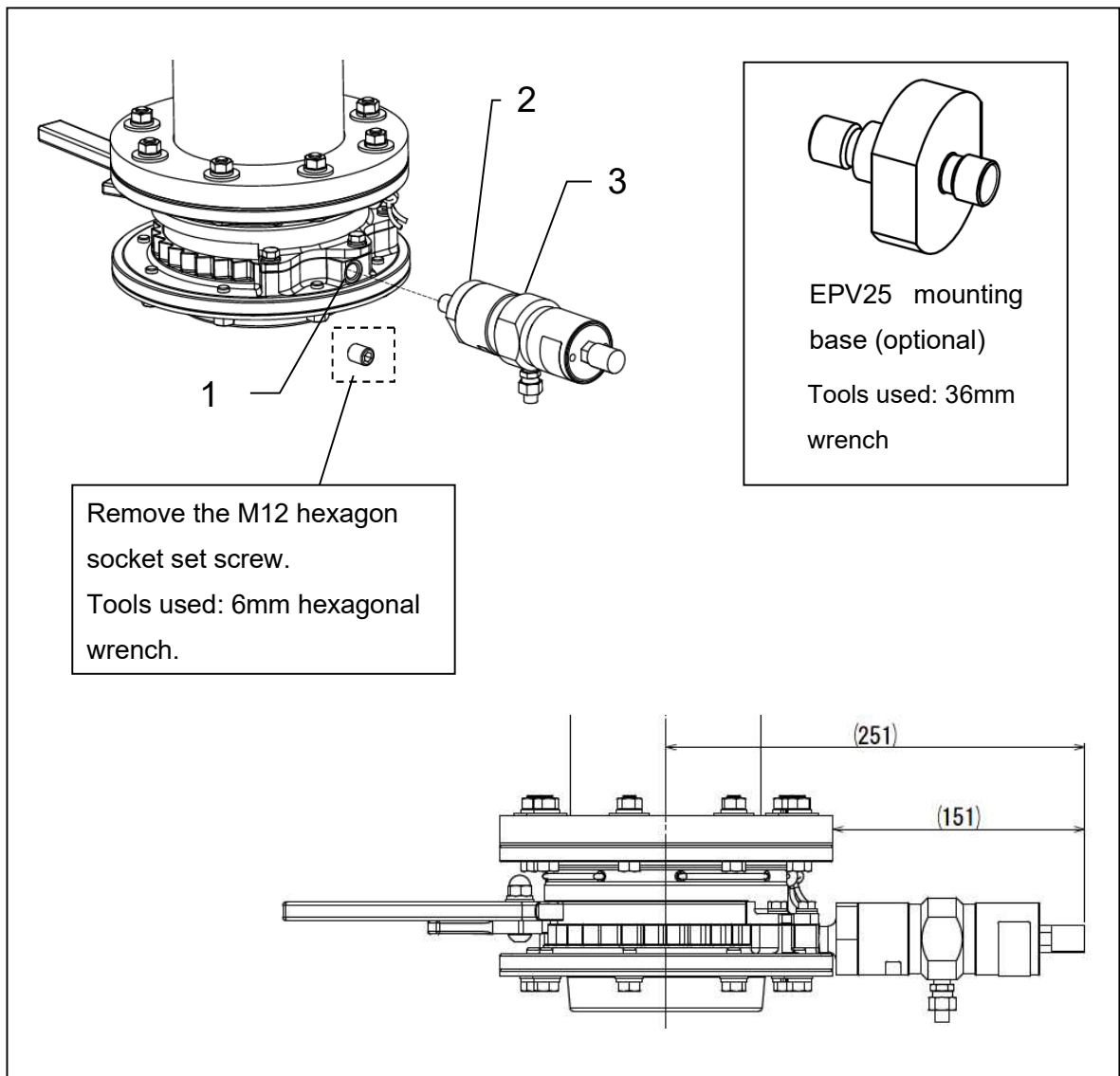
- Mounting base and EPV25 are required for use.

NOTE : EPV25 mounting base is optional.

- This discharge assist mechanism does not guarantee complete discharge of powders.

■ How to install EPV25

- Make sure you have enough space to install it.
 - Please refer to the operation manual of EPV piston vibrator.
1. Remove the hexagon socket set screw M12.
 2. Fix EPV25 in a vise, etc., and screw in the mounting base.
 3. Screw the mounting base with EPV25 attached into the tapped section.



- ▶ 1. Flange case lower M12 tap 2. EPV25 mounting base 3. Piston vibrator EPV25

○ CLEANING AFTER USE

- After use, clean off any powder or grain adhering to the main unit and sleeve valve.

NOTE : When washing the sleeve valve, use a neutral detergent and wash by hand.

○ INSPECTION

- Be sure to check the following items before and after use. It prevents any trouble as much as possible during use.

1. Does the sleeve valve open and close smoothly?

NOTE : If you feel resistance in opening and closing operation, do not use the product forcibly and disassemble it to investigate the cause.

NOTE : The hook part of the twist assembly may be twisted, or foreign object may be caught in the sliding part, causing sliding resistance.

2. Is the sleeve valve torn or punctured?

3. Is the sleeve valve opening too narrow or closing too loose due to the tension of the rope?

NOTE : The tension of the rope affects the opening and closing of the sleeve valve.

To adjust how well the sleeve valve opens and closes, adjust the rope tension with the cord lock.

NOTE : If the rope tension is too strong when sealing, the sleeve valve will be squeezed too tight which may cause, the fabric to tear during use.

Ideally, the rope should be taut enough that when the handle is in the sealed position without the sleeve valve installed and the center of the rope is pressed lightly with a finger, the rope sinks slightly.

4. Check the handle fixing bolts are not loosen?

(Tightening torque : $2.2\text{N} \cdot \text{m}$)

5. Are the flange fixing bolts loosen?

○ REPLACEMENT PERIOD FOR CONSUMABLES

- Consumables should be replaced periodically according to the below table.

NOTE : When replacing consumable parts, disconnect the machine from the pipe, place it on a solid work bench, and use safe equipment, clothing, and posture. When removing the machine from the pipe, empty the inside of the pipe to prevent powder from accidentally flowing down.

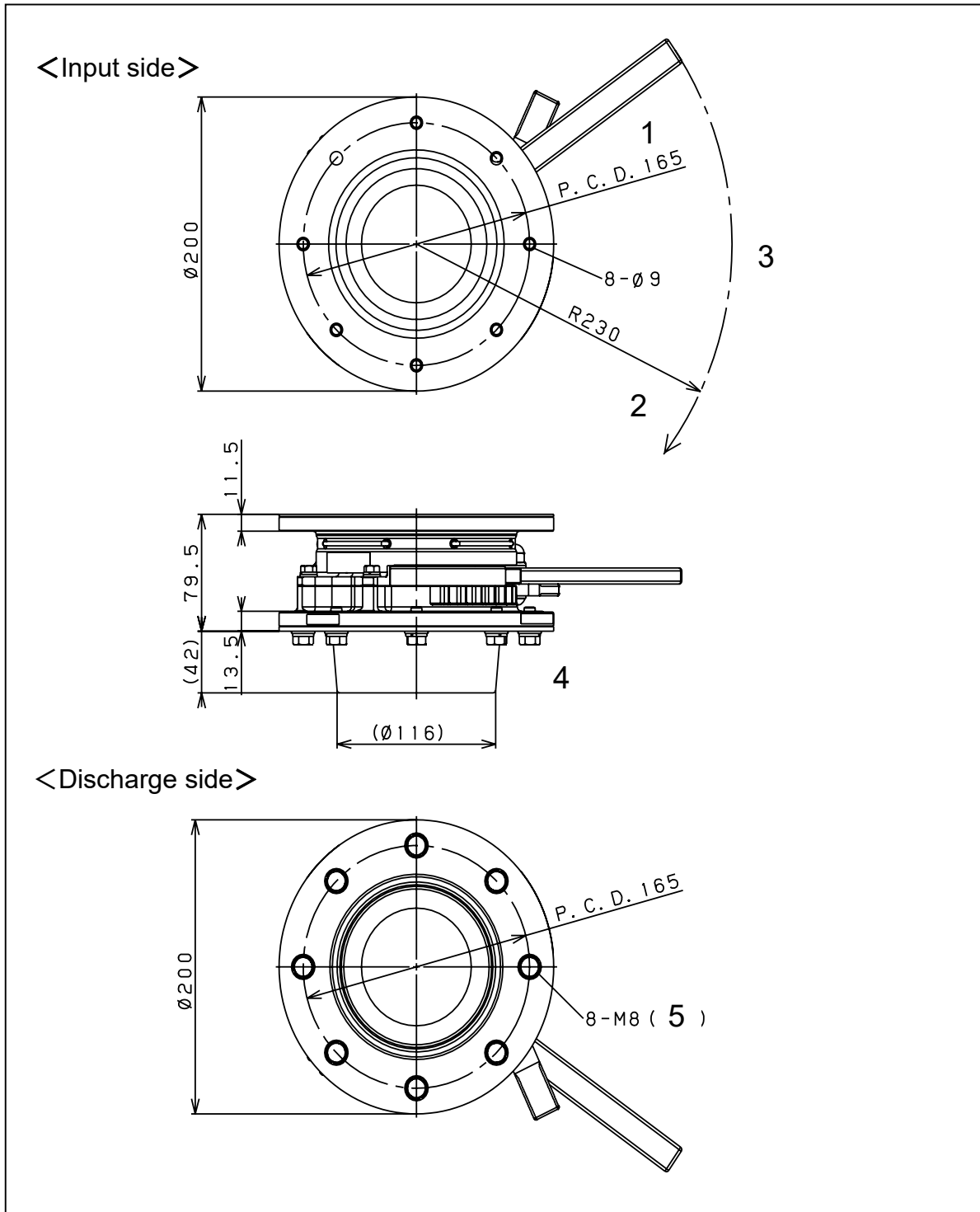
Consumables	Replacement period. (Visual and hearing check)	Replacement frequency (Target : for reference)
Sleeve valve assembly	Judging by the degree of dirt and tears (Visual)	Upon found
Rope	Determined by degree of stretch and wear (Visual)	Upon found
Twist assembly	Judged by bends and breaks (Visual)	Upon found
Torsion spring	Determined by the effectiveness of the handle stopper (stopper does not function)	Upon found
Trigger handle	Determine depending on the wear (Visual)	Upon found
Choke ring	Determined by wear, damage, and operation sounds (Visual and hearing check)	Upon found
	Rattling of handle section (Looseness with fixing bolt)	Upon found
Flange case (Top and lower)	Determined by the degree of wear on the coating of the sliding parts (Visual)	Upon found

○ SPECIFICATIONS

Drive: Manual

Mass : 2.65kg

Operating temperature : 5—60℃



1. Full opening 2. Closing position 3. Only about 90 degrees 4. Full opening condition
5. Tap

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