
OPERATION MANUAL

Refresh Filter

FN11 series

- Read the manual carefully before mounting product and starting operation.
 - Description concerning safety shall be fully understood.
 - Keep the manual so that this is available whenever necessary.
 - The contents of this manual is revised without notice.

S M C C O R P O R A T I O N



Refresh filter

SAFETY INSTRUCTIONS

These safety instructions are intended to prevent hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labeling "Caution", "Warning" or "Danger".



Caution: Operator error could result in injury or equipment damage.



Warning: Operator error could result in serious injury or loss of life.



Danger: In extreme conditions, there is a possibility of serious injury or loss of life.

! Warning !

- ① **The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decide its specifications.**

Since the products specified here are used in various operating conditions, their compatibility with the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

- ② **Only trained personnel should operate pneumatically operated machinery and requirement.**

Fluid can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

- ③ **Do not service machinery/equipment of attempt to remove components until safety is confirmed.**

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control of fluid.
2. When equipment is to be removed, Cut the supply pressure for the equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is re-started, take measures to prevent any safety problem.

- ④ **Contact SMC if the product is to be used in any of the following conditions:**

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Fluid compatibility is a problem due to the type and the additive.
3. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuit, press applications or safety equipment.



Refresh Filter safety caution – Read through before usage

- DESIGN -



Warning!

(1) Operating pressure

Do not apply pressure exceed specification range.

(2) Operating temperature

Do not operate with temperature exceed specification range.

(3) Operating fluid

Do not apply for gas.

(4) Fatigue breakage

Countermeasures necessary under following operating conditions

- Surge pressure applied to the element(*)
- Filter is not securely settled, and receives vibrations
- Element receives thermal influence, and repeats expansion and contraction.

(5) Pressure drop(ΔP)

Adjust the initial pressure drop at 0.01MPa~0.02MPa.

(6) Corrosion

Please be noted that the filter corrodes depending on operating condition and environment.

- How to Select Model -



Warning!

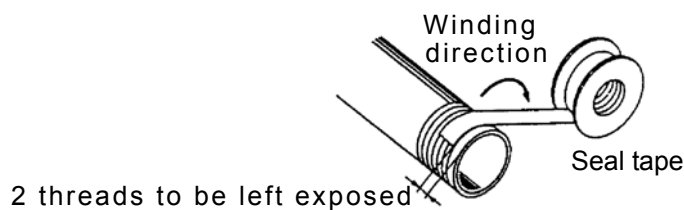
- (1) Follow the specification to select the model in accordance with the operating purpose, spec. requirement, and operating conditions including fluid, pressure, flow, temperature, environment.
- (2) Do not apply for gases including air.

- Piping -

⚠ Caution!

- (1) Make enough space for maintenance to install and pipe.
- (2) Make sure to clean up chips, cutting oil, dust by air or cleaning.
- (3) Ensure the direction of IN and OUT is correct.
- (4) Connecting

When installing piping or fitting into a port, ensure that sealant material does not enter the port inside. When using seal tape, leave 1.5 to 2 threads exposed on the end of pipe/fitting.



- (5) Line flushing

Flush the piping lines at initial operation and replacement.

- Fluid -

⚠ Warning!

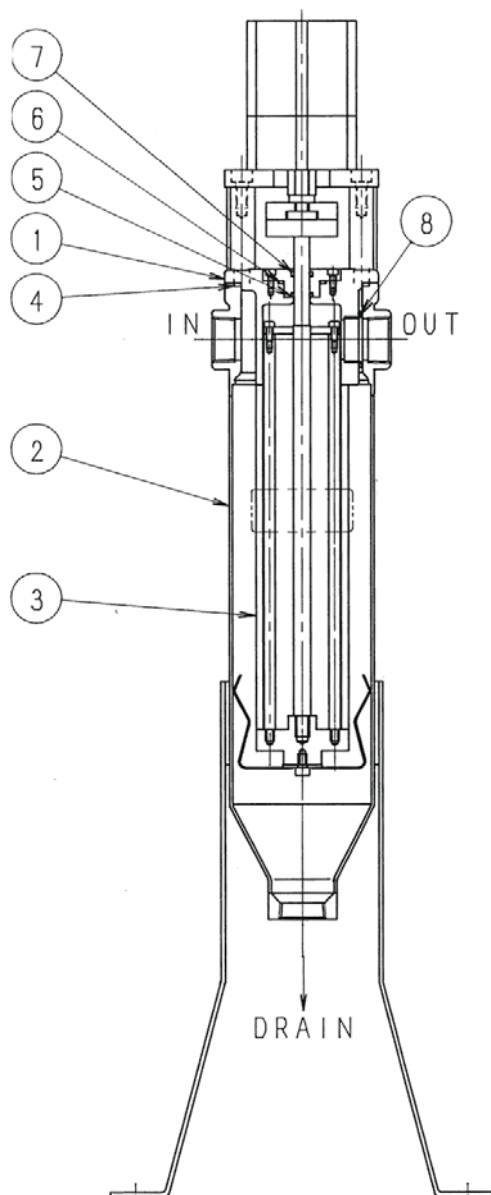
- (1) Refresh filter is to be used to filter water, alkaline, coolant and cleaning fluid. Inapplicable fluid may deteriorate the packing and O ring, and result in leakage.

- Operating environment -

⚠ Warning!

- (1) At corrosive environment or place, the filter may be discolored or deteriorated due to corrosion. The filter does not work as filter if corroded.
- (2) Operation where contains vibration and impact causes fatigue breakage. Reinforce the filter, if necessary.

Fig.1 Structure



Component

No.	Description	Material	Note
①	Cover	SCS13	
②	Case	SCS13	
③	Element	SUS304	

Replacement part

No.	Description	Material	Note
④	"O" ring	NBR	JISB2401-1A-G90
⑤	Pentagon seal		PS-11.2
⑥	"O" ring		JISB2401-1A-G25
⑦	Scraper		SER-11.2
⑧	"O" ring	FPM	JISB2401-1A-P32
④	"O" ring		JISB2401-4D-G90
⑤	Pentagon seal		PS-11.2F
⑥	"O" ring		JISB2401-4D-G25
⑦	Scraper		(NBR)SER-11.2
⑧	"O" ring		JISB2401-4D-P32

1. Installed location

- 1-1 Place where not heated(Install where temperature is lower than the set temp.)
- 1-2 Install indoor.
- 1-3 Make enough space for maintenance.

2. Installation(Piping)

See Fig-2(Pipe connection)

- 2-1 Mount automatic valve(ball type, N.C. type) to IN and OUT of the filter(reservoir OUT port when reservoir installed), and DRAIN port.
*For automatic detection of element clogging, connect inlet and outlet pressure before/after the filter to the differential pressure gauge.
- 2-2 Connect air pressure to the reservoir air bent and the cylinder (filter upper part).
- 2-3 Adjust valves and cylinders by the controller(sequencer) so that they receive optimum control for the purpose.(See time chart, fig-3)
Note) IN valve is closed during back wash. Install the bypass circuit to release the pressure, if necessary.(Protection of equipment installed in inlet side)

3. Operation

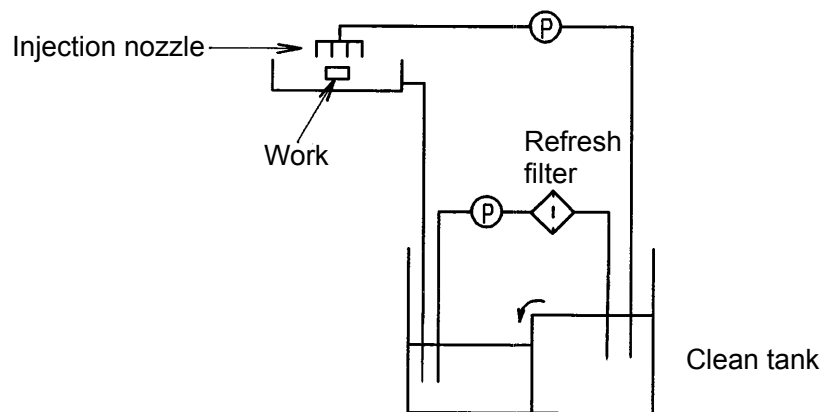
- 3-1 Ensure open/close of the valves of the piping, and all the joint are completely sealed.(See Fig-1, structure)
- 3-2 Start operation. (Residual air in the housing is discharged to OUT with the fluid).
- 3-3 Back wash before differential pressure reaches 0.1~0.12MPa.(If back wash is a part of operation cycle, keep the differential pressure at 0.1~0.12MPa or lower).
- 3-4 Back wash is necessary after the operation, and empty the filter to prevent the dust to be adhered.

4. Maintenance

The filter basically does not need maintenance. If the element become dirty and back wash is not enough(differential pressure is not reduced due to adhesion of dust), maintenance based on the disassembly procedure is necessary to clean the filter.

Note) Please consult us if you need the operation manual of the reservoir and the dust collecting filter.

*If the filter is used fir cleaning line, the circuit shall be designed co that the cleaning fluid is circulating through the reservoir.



Recirculating filter cleaning line