

Model SL-1S • SF-1S • SB-1S Sight-Glass



Model 150L

Model 150F Flow Indicator

Instruction Manual

Thank you very much for purchasing Yoshitake Products. Please read this instruction manual thoroughly before using our product, so that you may do so correctly and safely. Please carefully store this manual in a handy place.

The following safety symbols are used in this manual.

 Warning	This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
 Caution	This symbol indicates a hazardous situation that, if not avoided, may result in minor or moderate injury. ("Caution" may also be used to indicate other unsafe practices or risks of property damage.)

Specification

Model	SB-1S	SF-1S	150F-S	150F-F	150F-13S	150F-13F	SL-1S	150L-S	150L-F	150L-13S	150L-13F	
Type	Ball type	Flapper type					See-through type					
Application	Cold/Hot water	Water, oil, and other non-corrosive liquid										
Nominal size	15~25A	15~25A	32~50A	15~150A	15~50A	15~100A	15~25A	32~50A	15~150A	15~50A	15~100A	
Max. pressure	1.0MPa											
Max. temperature	85°C	180°C										
Heat impact resistance temperature	—	100°C										
Material	Body	FC200			SCS13			FC200			SCS13	
	Glass	Heat resisting glass ※1										
	Flap	—	SUS304 or SUS316					—				
	Ball	Synthetic resin ※2	—									
Connection	JIS Rc screwed			JIS10K FF Flange	JIS Rc screwed	JIS10K FF Flange	JIS Rc screwed		JIS10K FF Flange	JIS Rc screwed	JIS10K FF Flange	

※1. When a fluid is a steam condensate, use units equipped with mica plates.

※2. The balls include white, red, and blue balls (3 in total).

● Models equipped with Stainless (SCS14) body is also available. (150L—14□)

● Models equipped with mica plates are also available.

● Models equipped with protective screens are also available. (150□P—□□□)

Confirm the specifications and operate Sight-Glass/Flow Indicator



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INC.

Precautions before operation

Caution

1. Before installing the unit, verify that its specifications are adequate for the conditions in operation.
 - ※If it is not, the device will not function properly.
2. The piping should be thoroughly flushed out before installing the unit.
 - ※If this is not done, the glass may be damaged by a foreign matter in the piping or soiled by scale, oil, and so forth. Then, it will not be possible to see through the glass.
3. When installing the unit, use caution to install the unit in proper direction.
 - ※Otherwise, the device will not function as it does.
4. When the fluid is a steam condensate, the unit should be equipped with a mica plate in order to protect the glasses.
 - ※If it is not, the glasses may be corroded.
5. Use a special caution not to apply excessive load, bending stresses, and vibrations on the unit during the piping installation.

Precautions for valve operation

Warning

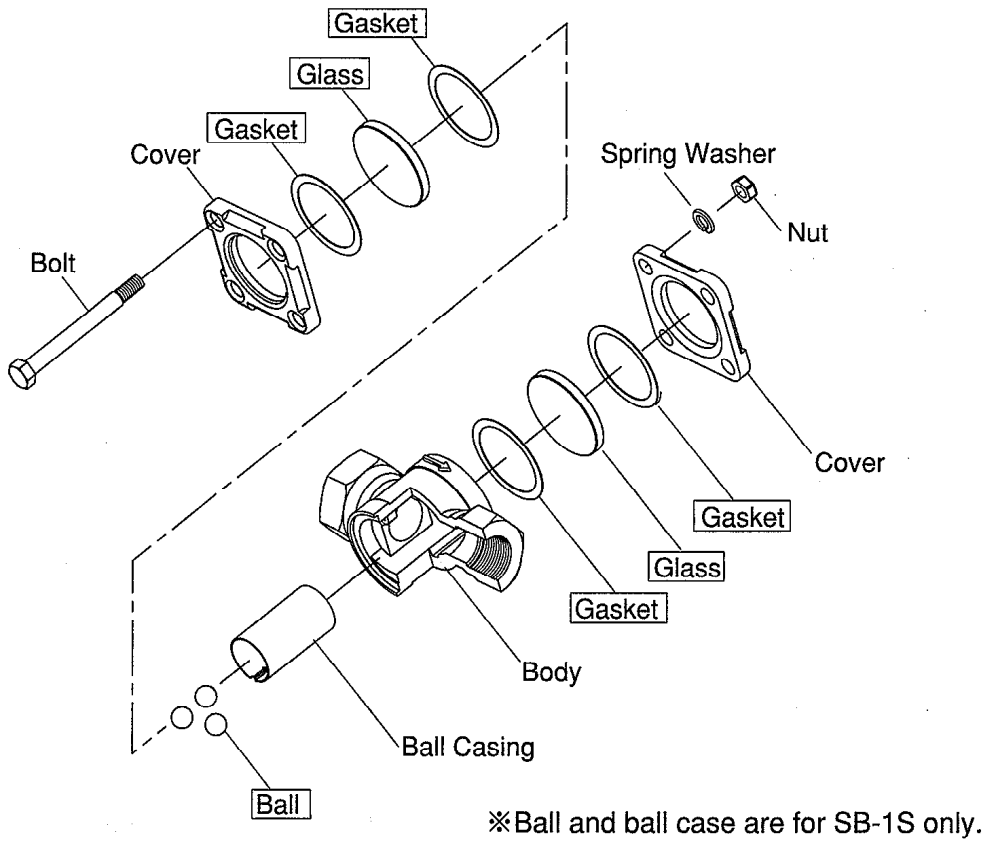
1. Use a special caution to prevent sudden temperature changes during initial water blowing and normal usage phases.
 - ※Sudden temperature changes may break the glasses, and the fluid may blow out.
2. When a fluid of high temperature is treated, do not touch the product directly with bare hands.
 - ※Your hands may get burned.

Caution

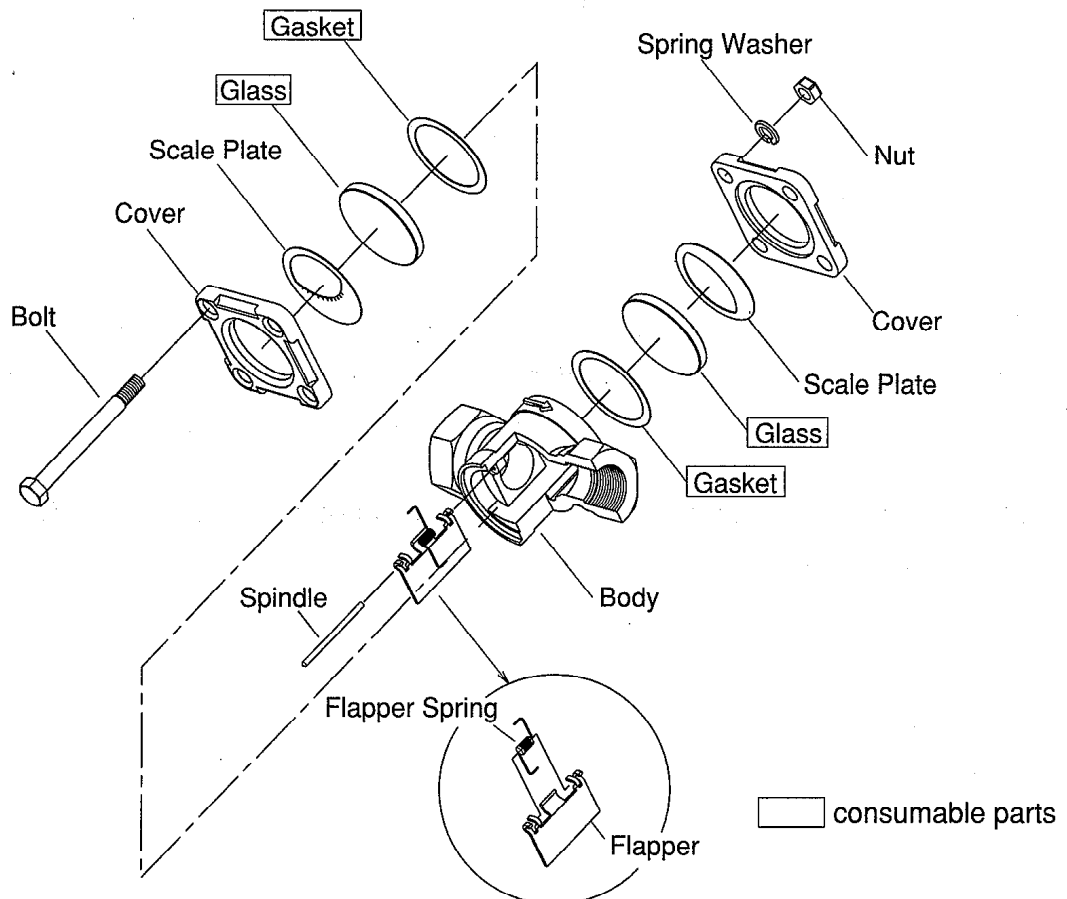
1. The glasses should be inspected annually to ensure that its inner side is free from corrosion and its outer surface is free from scratches, since the glasses is a consumable item.
2. The balls of SB-1S are consumable items. When the size of the ball becomes smaller than 5mm, replace it with a new ball.

Exploded drawing

- Model SB-1S
- Model SL-1S

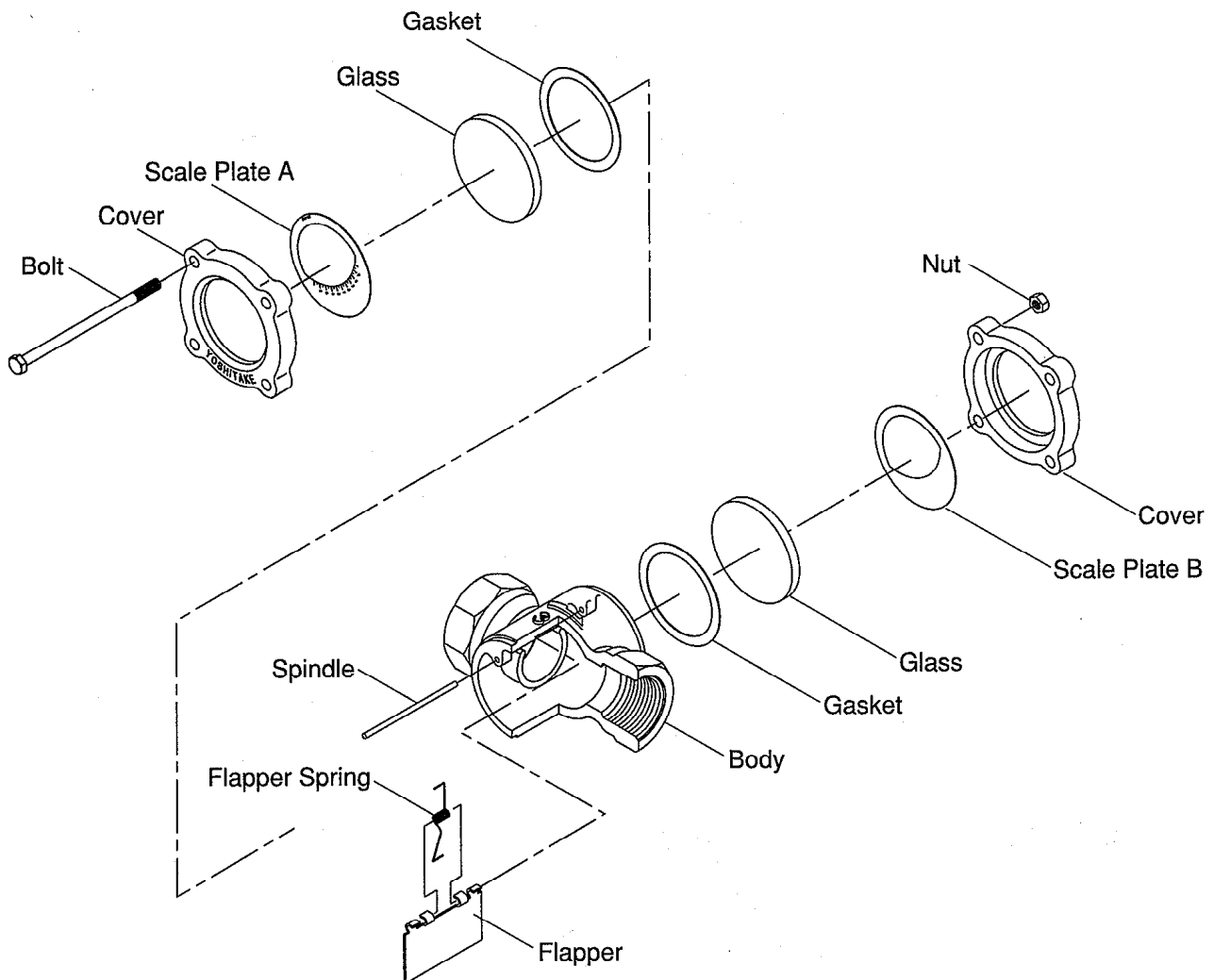


- Model SF-1S



Exploded drawing

●Model 150F



- The 150L Model (see-through type) has no flapper (flapper, flapper spring, and spindle), and gaskets are used in place of indicator plates "A" and "B".
- Regarding units equipped with mica plates, the mica plate is affixed to the inner side of the glass.
- Regarding units equipped with protective screens (150LP and 150FP models), the construction of the cover area differs slightly from that of standard units.

Disassembly

Warning

Completely discharge internal pressure from the product, piping, and devices before disassembly and inspection. When a fluid of high temperature is treated, cool off the product before disassembling it. Disassembling the product which has some pressure left inside may cause injury or burn.

● Model SB-1S, SL-1S

※ Ball and ball case are for SB-1S only.

1. After confirming that no pressure is left inside the sight glass, remove the hexagon bolts, hexagon nuts and spring washers, and then remove the covers and glasses.
※ Be careful not to lose the balls somewhere, because it may fall down when the glasses are removed.
2. After taking out all balls, put gloves on your hands and remove the ball case.
※ Be careful not to injure your hands with the edges of the case.

● Model SF-1S

1. After confirming that no pressure is left inside the sight glass, remove the hexagon bolts, hexagon nuts, and spring washers, and then remove the covers and glasses.
2. Pull out the spindle, while holding the flapper and flapper spring.
※ Be careful not to lose the flapper spring when pulling out the spindle.

● Model 150L

Completely discharge internal pressure of the flow indicators, and remove the hexagon bolts, nuts, covers and glasses. If the glass is stuck to the body, re-put the cover and slightly hit the outside the cover.

● Model 150F

1. Completely discharge internal pressure of the flow indicators, and remove the hexagon bolts, nuts, covers and glasses. If the glass is stuck to the body, re-put the cover and slightly hit the outside the cover.
2. Remove the spindle holding the flapper and flapper spring.
※ Note that not to lose the flapper spring.

Cautions for assembly

Caution

1. Clean up the faces of the body, covers, and glasses which the gasket is touching.
※The fluid may leak from the gasket, cause injury or burn.
2. The glass is a consumable item. Replace the glass with a new one if the glass is scratched or its thickness has been decreased more than 10%.
※If the corroded glass is not replaced, the fluid may leak out of the glass and cause injury or burn.
3. The gasket is a consumable item. Use a new one to assemble.
※If the new one is not used, the fluid may leak out of the gasket and cause injury or burn.
4. The balls of SB-1S are consumable items. Replace it with a new one when its diameter becomes less than 5mm.
※The diameter of the ball is about 5/16 (7.94mm) when it is a new one, and three balls (red, white, and blue) are included.

Assembly procedure

●Model SB-1S, SL-1S

※Ball and ball case are for SB-1S only.

1. Put the brim of the ball case into the ditch of the body, and both right and left spaces between the ball case and glasses should be equal.
※The ball case must face toward the certain direction when it is attached; otherwise, it does not function as it does. (See the drawing-1)
2. Put the balls into the ball case, and attach each part from both sides of the body in the following sequence (gaskets→glasses→gaskets→covers).
3. After loosening the hexagon bolts, hexagon nuts and spring washer, screw each bolt equally and tightly by specified torque.
Over-tightening makes the glasses damage.
(Refer to the table-1 for specified torque)

●Model SF-1S

1. Combine the flapper and flapper spring, and insert the spindle to it while holding it.
※The flapper and flapper spring must face toward the correct direction to be correctly attached. If they are not facing the correct direction, they do not function properly. (Refer to the drawing-2)
2. Attach each part from both sides of the body on the following sequence (gasket→glass→Scale Plate A (B) →cover).
3. After loosening, the hexagon bolts, hexagon nuts and spring washer, screw each bolt equally and tightly by specified torque.
Over-tightening makes the glasses damage.
(Refer to the table-1 for specified torque)

Table-1

Nominal Size	Specified Torque
15A	4.9N·m
20A	4.9N·m
25A	8.8N·m

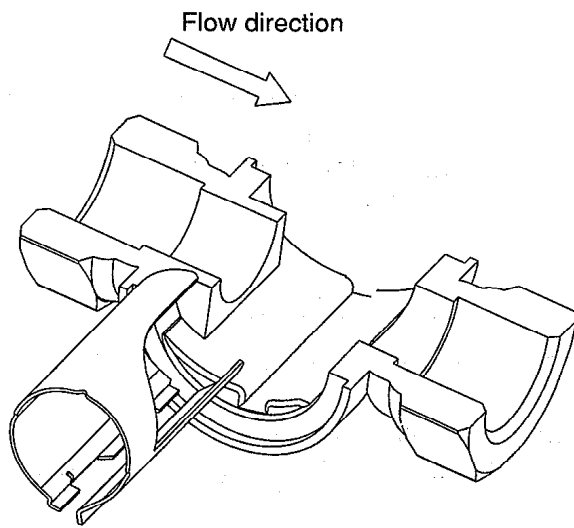


Figure 1

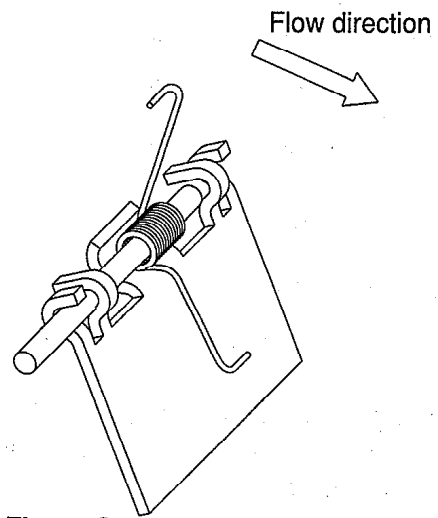


Figure 2

● Model 150L

1. Put the gaskets, glasses, gaskets and covers to both sides the body.
2. After temporary fixing of the hexagon bolts and nuts, tighten them equally in specific torque. Over-tightening makes the glasses damage. (Refer to Table 2 specific tightening torque)

Table-2

Nominal size	Specified Torque
15A·20A	6.9N·m
25A·32A	9.8N·m
40A	14.7N·m
50A	24.5N·m
65A~125A	29.4N·m
150A	34.3N·m

● Model 150F

1. Temporarily assemble the flapper and flapper spring, and put the spindle holding the flapper and flapper spring.
 - ※The flap and flap spring must face toward the correct direction to be correctly attached. If they are not facing the correct direction, they do not function properly. (Refer to the drawing-2)
2. Fix the gaskets, glasses, indicating plates (A < B) and covers to both sides the body.
3. After temporary fixing of the hexagon bolts and nuts, tighten them equally in specific torque. Over-tightening makes the glasses damage. (Refer to Table 1 specific tightening torque)

After Sales Service

1. Warranty application and period

Products delivered to user are manufactured with our high level of engineering techniques under strict quality control. Please observe the descriptions in this instruction manual or precautions on the hazard labels attached to the product. Should the product be faulty due to material or factors in our manufacturing processes, we will repair the product at no charge.

This warranty is valid for one (1) year after delivery.

2. Repairs will be charged even during the warranty period in the following cases:

- (1) Damage and failure due to user's incorrect operation, repairs and remodeling upon user's discretion.
- (2) Damage and failure due to location change of the product after delivery and drop of the product.
- (3) Damage and failure due to use under severe conditions beyond design specifications or incorrect operation.
- (4) Damage of failure due to natural disasters, such as fire, earthquake, lightning, corrosion due to salt, gas, wind, and abnormal voltage.
- (5) Replacement of excessive worn parts.



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