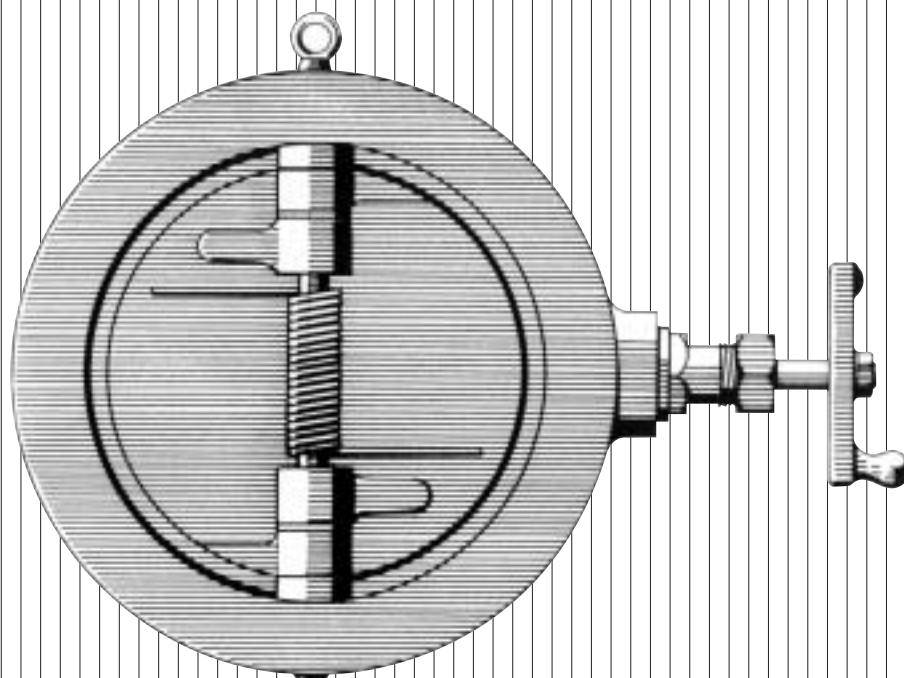


**Wafer Check Valve for JIS10K and 20K  
(Bata-Check) 901C/903C/904C/906C**

**INSTRUCTION MANUAL**

# Bata-Check®



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This instruction manual explains standard usage of the Bata-Check 901C, 903C, 904C and 906C .

Please read this manual thoroughly in order to ensure correct use of the product.

# Bata-Check STANDARD SPECIFICATIONS

## 1.0 MPa

Disc type	903C	901C	904C
Body shape (Connection)	Wafer type		Wafer type
Valve nominal size	50mm to 300mm	350mm to 450mm	50mm to 300mm
Applicable flange standard	JIS 10K (JIS 5 K as option)		JIS 10K (JIS 5 K as option)
Face-to-face dimensions	Manufactured standard		Manufactured standard
Max. working pressure	1.0MPa		1.0MPa
Working temperature range	EPDM: - 20 to 120 degrees C, NBR: - 10 to 80 degrees C		EPDM: - 20 to 120 degrees C, NBR: - 10 to 80 degrees C
Allowable temperature in continuous use	EPDM: 0 to 100 degrees C, NBR: 0 to 60 degrees C		EPDM: 0 to 100 degrees C, NBR: 0 to 60 degrees C
Standard materials	Body	FC250	SCS13
	Plate	CAC702	SCS13
	Shaft	SUS304 (50mm to 150mm) SUS420J2 (200mm to 300mm)	SUS304 (50mm to 150mm) SUS329J1 (200mm to 300mm)
	Spring	SUS304	SUS304
	Seat	NBR (EPDM and FKM as option)	*EPDM (NBR and FKM as option)

\* Never use an EPDM rubber seat ring if the valve is being used for oil or for a fluid containing even a slight amount of oil.

## 2.0MPa

Disc type	906C	
Body shape (Connection)	Wafer type	
Valve nominal size	50mm to 300mm	
Applicable flange standard	JIS 16K/20K	
Face-to-face dimensions	API594 Class125	
Max. working pressure	2.0MPa	
Working temperature range	EPDM: - 20 to 120 degrees C, NBR: - 10 to 80 degrees C	
Allowable temperature in continuous use	EPDM: 0 to 100 degrees C, NBR: 0 to 60 degrees C	
Standard materials	Body	FCD-S
	Plate	CAC406 (50mm to 150mm) CAC702 (200mm to 300mm)
	Shaft	SUS304
	Spring	SUS304
	Seat	*EPDM (NBR as option)

\* Never use an EPDM rubber seat ring if the valve is being used for oil or for a fluid containing even a slight amount of oil.

# EXPANDED VIEW

## 903C/904C Parts list (50 mm to 150 mm)

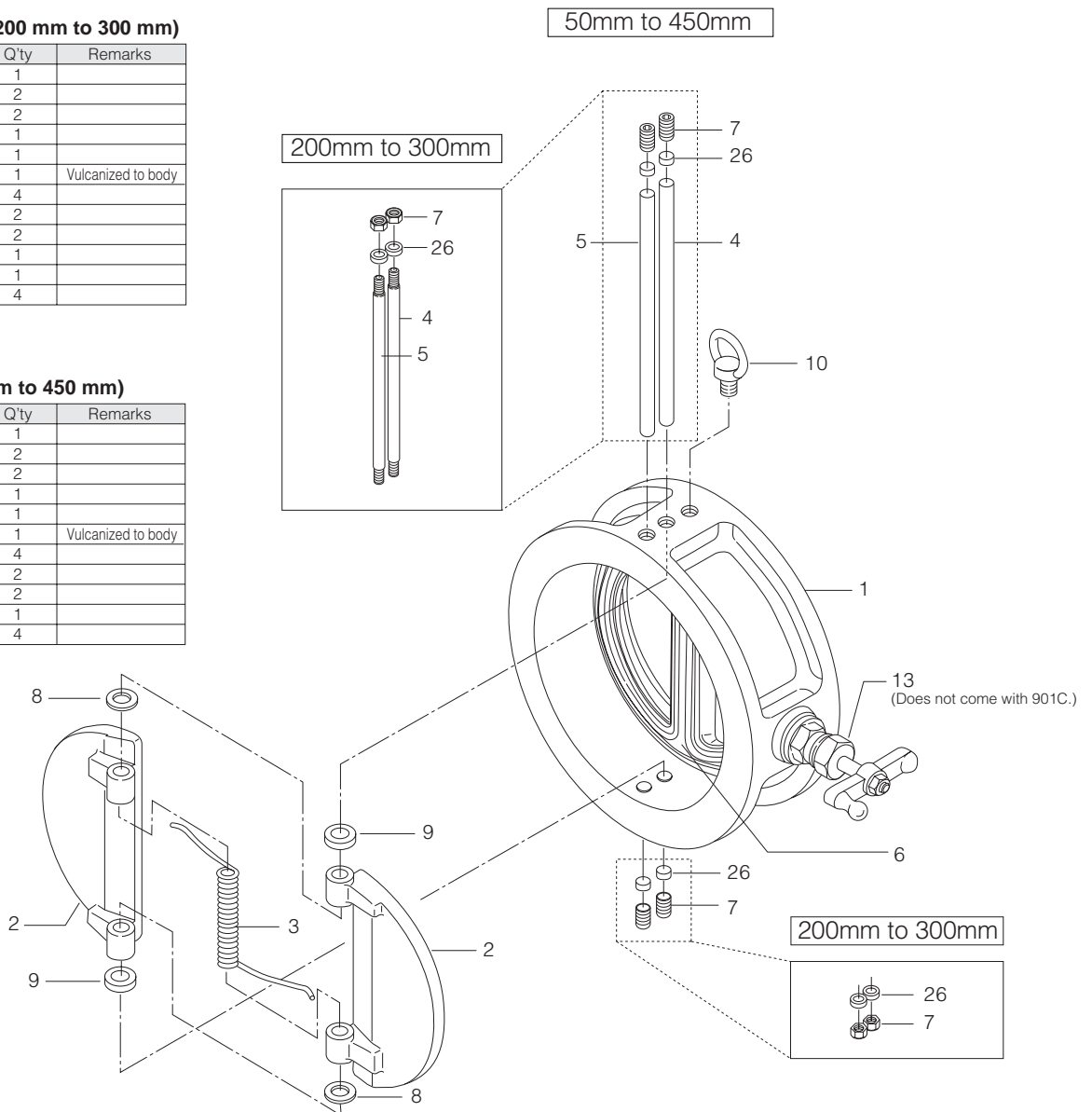
No.	Description	Q'ty	Remarks
1	Body	1	
2	Plate	2	
3	Spring	1	
4	Hinge pin	1	
5	Stop pin	1	
6	Seat	1	Vulcanized to body
7	Plug	4	
8	Bearing	2	
9	Bearing	2	
10	Eye bolt	1	150 mm only
13	Bypass valve unit	1	
26	Rubber bushing	4	

## 903C/904C Parts list (200 mm to 300 mm)

No.	Description	Q'ty	Remarks
1	Body	1	
2	Plate	2	
3	Spring	2	
4	Hinge pin	1	
5	Stop pin	1	
6	Seat	1	Vulcanized to body
7	Hexagon nut	4	
8	Bearing	2	
9	Bearing	2	
10	Eye bolt	1	
13	Bypass valve unit	1	
26	Seal washer	4	

## 901C Parts list (350 mm to 450 mm)

No.	Description	Q'ty	Remarks
1	Body	1	
2	Plate	2	
3	Spring	2	
4	Hinge pin	1	
5	Stop pin	1	
6	Seat	1	Vulcanized to body
7	Plug	4	
8	Bearing	2	
9	Bearing	2	
10	Eye bolt	1	
26	Rubber bushing	4	



## PACKAGING



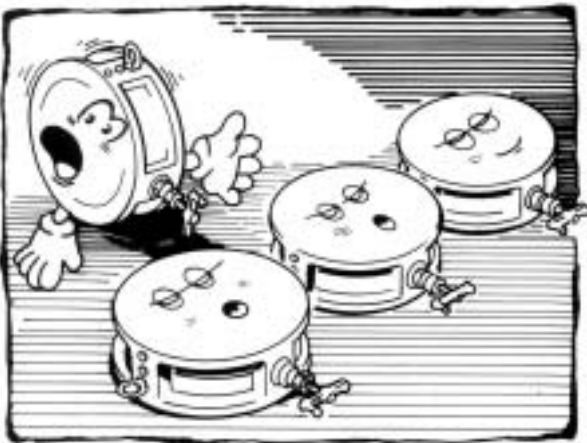
(Fig. 1)

- (1) For 50 to 300 mm, standard gear type and lever type off-the-shelf products are packed in cardboard or wooden boxes. For products other than these, a plywood protective plate is attached to the flange face of the valve body (piping flange contact surface) in order to protect the inner side of the valve.
- (2) The inner sides of models 903C, 901C and 906C are coated with a thin layer of rust preventive oil.
- (3) The Bata-Check has a nameplate with which you can verify information such as the nominal size and material. (Fig. 1)

## TRANSPORT

- (1) Use containers for ocean transport.
- (2) Use a covered vehicle for inland transport. If an uncovered vehicle is used, be sure to cover the valves with a protective tarp.

## STORAGE



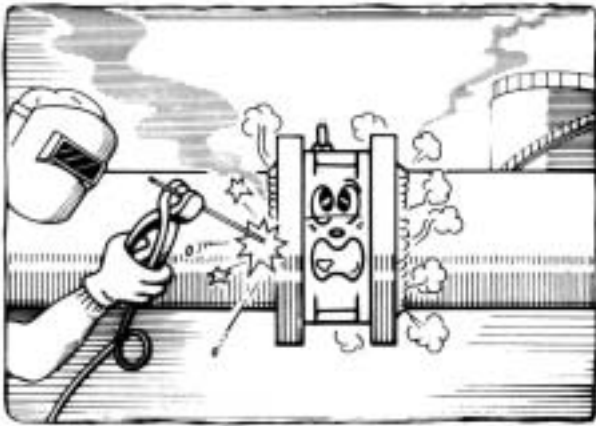
(Fig. 2)

- (1) When storing valves, keep them indoors in as cool and dark a place as possible (temperature: -10 to +60 degrees C, humidity: 70 % or less) without removing the cardboard packaging or the protective plate attached to the Bata-Check.
- (2) When storing unpackaged Bata-Check, make sure that no unreasonable load is being applied to the body. (Fig. 2)

## UNPACKING

- (1) Unpack the Bata-Check immediately before installing it into the piping. Do not leave the Bata-Check unpacked for long periods of time.

# INSTALLATION PRECAUTIONS

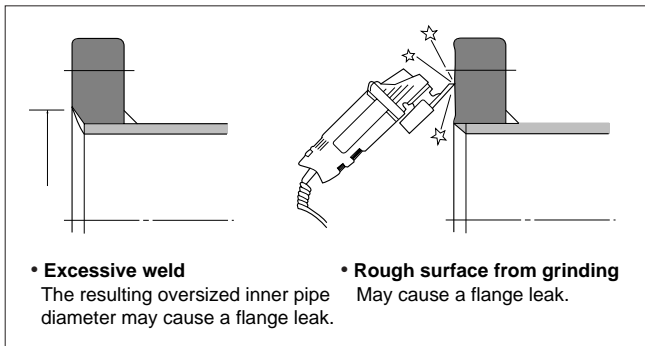


(Fig. 3)

(1) Installation of the Bata-Check immediately after welding the pipe flange will lead to adverse consequences, such as damage to the seat ring. Make sure that the temperature has cooled sufficiently and that you have removed weld spatter before installing the Bata-Check. Never weld when the Bata-Check is in the piping. (Fig. 3)

(2) The flange may leak if the flange face that contacts the Bata-Check is as shown in Fig. 4. Also, please confirm that there is no distortion to the flange or that there is no damage, such as scratches, to the flange face.

(3) Always be sure to use a piping gasket. The piping gasket will enter the piping inside and cause malfunction if a rubber or similar soft gasket is used. Therefore, make sure that the piping gasket does not enter the radius of Bata-Check plate operation. (Fig. 5) (Table 1)

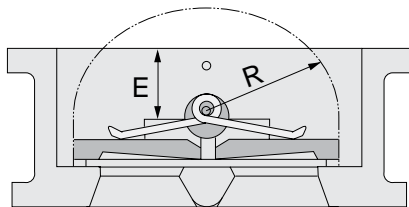


(Fig. 4)

(Table 1) Plate operation radii

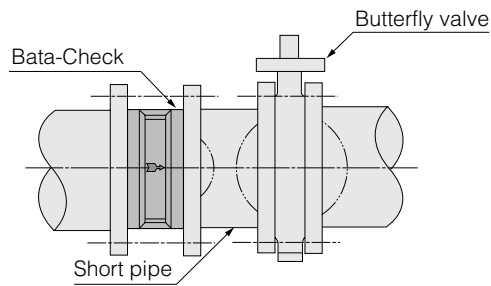
Nominal size (mm)	903C/904C		901C		906C	
	E	R	E	R	E	R
50	26.5	30	—	—	26.0	32.0
65	24.5	36	—	—	28.5	38.5
80	26.5	43	—	—	33.5	45.0
100	30.0	53	—	—	32.5	57.0
125	30.0	69	—	—	45.0	70.0
150	33.0	81	—	—	51.5	81.5
200	41.0	105	—	—	76.0	108.0
250	42.7	130	—	—	79.0	132.5
300	64.0	155	—	—	110.5	158.5
350	—	—	111	172	—	—
400	—	—	108	199	—	—
450	—	—	112	226	—	—

(Table 1)

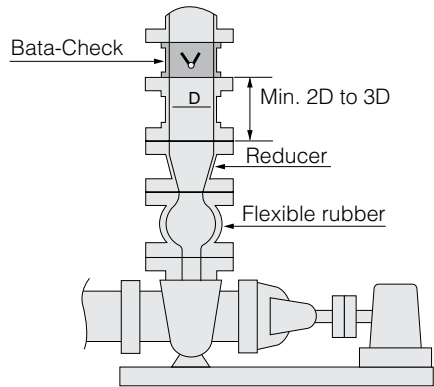


(Fig. 5)

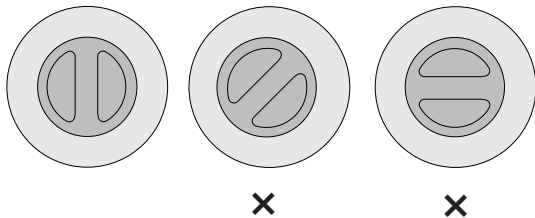
(4) Align the Bata-Check to the flanges accurately. Malfunction can occur if the pipe edge or piping gasket enters the radius of Bata-Check plate operation.



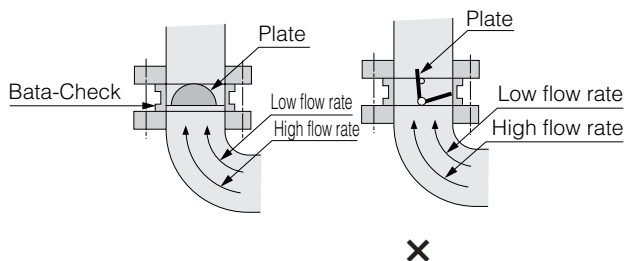
(Fig. 6)



(Fig. 7)



(Fig. 8)



(Fig. 9)

- (5) Do not apply strong shock such as by throwing the Bata-Check.
- (6) When installing butterfly valve and Bata-Check, always insert a short pipe in between. Not doing so will cause the disc to hit during operation and lead to faulty operation. (Fig. 6)

- (7) Do not install the Bata-Check immediately after the pump or immediately before or after the reducer. Turbulence will cause chattering, which can lead to damage. When installing, separate it by a distance of 5 times the valve size (5D) or greater, or at the least, 2 to 3 times the valve size (2D to 3D). (Fig. 7)

Chattering:

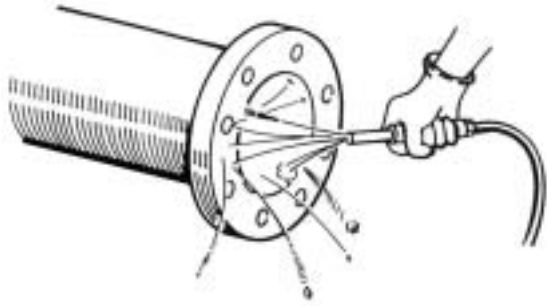
Chattering refers to the state in which turbulence causes the plate to continually move without it stopping in a fixed position. Sometimes the plate will repeatedly hit the stop pin (causing a click-clack sound) and in the worse case, it can open a hole in the body.

- (8) Please consult us when the liquid velocity flow exceeds 3 m/sec.
- (9) Seat leakage may occur if the pressure difference is less than 0.05 MPa.

- (10) Make sure no solvent gets onto the seat ring. Also, except for those made of NBR and fluorocarbon rubber (FKM), always keep the seat ring away from any machine oil.

- (11) When installing the Bata-Check, the installation direction should be in accordance with the following.
  - 1 For a horizontal installation make sure the Bata-Check rib is vertical. (Fig. 8)
  - 2 For elbow or pump exit installations, make sure the influence of the flow rate on the plate is well balanced. (Fig. 9)
  - 3 For installations on the secondary side of butterfly valves, make sure the valve shaft of the butterfly valve and the rib of the Bata-Check crosses alternately.

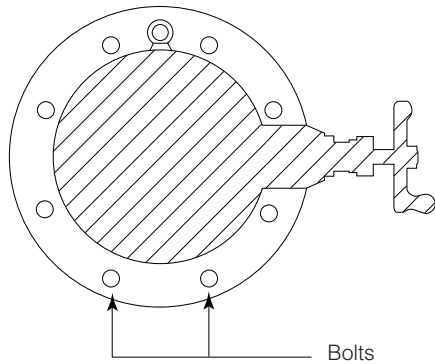
# INSTALLATION PROCEDURE



(Fig. 10)

- (1) Use air purging to clean the flange faces that will contact the Bata-Check. If there is rust or some other foreign material sticking to a flange face, clean it with a suitable cleaning fluid (alcohol or neutral detergent, etc.). (Fig. 10)

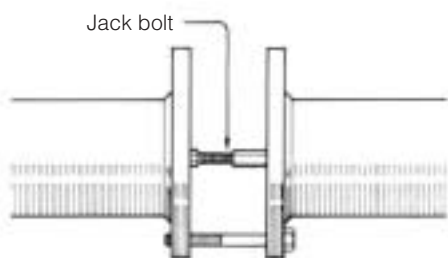
If possible, install in the piping a short pipe with a face-to-face dimension identical to the Bata-Check and blow into the pipe to completely remove foreign substances.



(Fig. 11)

- (2) After aligning the piping, insert a piping bolt into the position in the figure and secure the Bata-Check to prevent it from dropping. (Fig. 11)

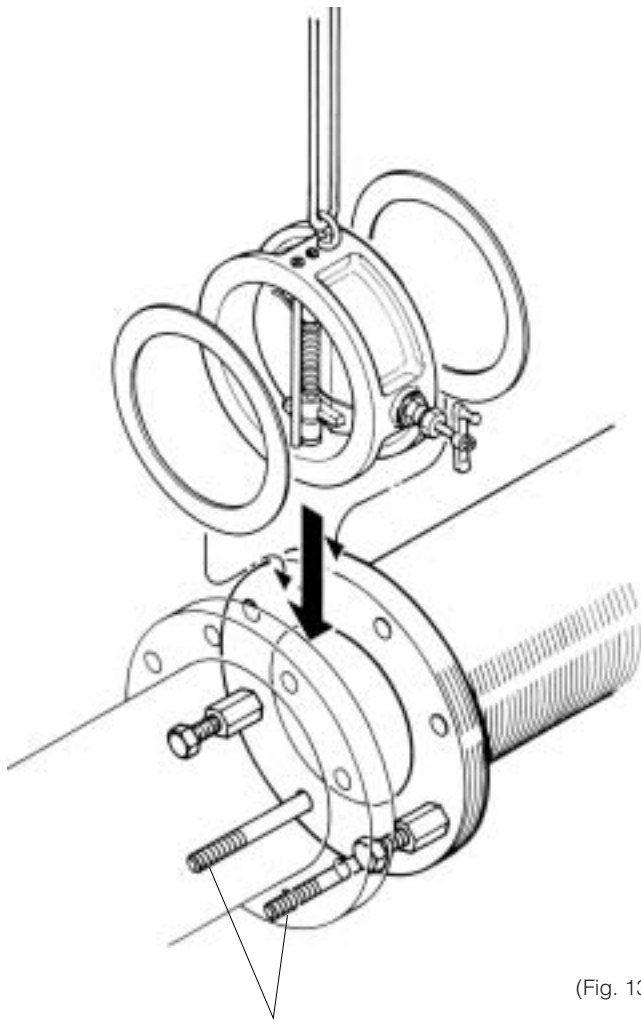
- (3) Place a jack bolt in the position shown in the figure to widen the face-to-face dimension. (If you require, we can supply jack bolts.) Push and widen to make the face-to-face dimension 3 to 5 mm greater than the Bata-Check width on each side. (Fig. 12)



(Fig. 12)

- (4) Insert as shown in the diagram, taking care to avoid damaging the flange faces of the Bata-Check. If the Bata-Check is forcibly pushed between the piping edges, the flange faces will get scratched and leakage will result. Also, make sure that the direction of the fluid matches the direction of the arrow (embossed) on the Bata-Check body. (Fig. 13)



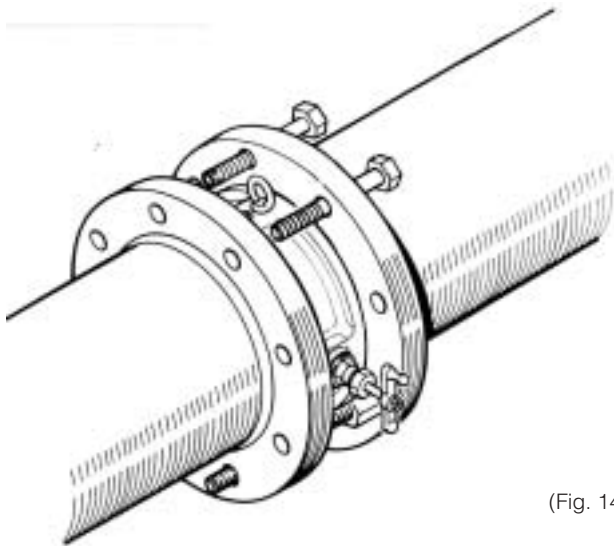


Piping bolts

(Fig. 13)

- (5) When the Bata-Check is completely inserted, insert piping gaskets and piping bolts. (Fig. 13)  
To facilitate installation, suspend the Bata-Check with a crane or similar equipment while working. To lift the Bata-Check, use nylon string and suspend it from its eye bolts (nominal size 150 mm type and more).

- (6) After inserting all of the piping bolts, remove the jack bolts and then gradually tighten the nuts alternating diagonally so that the nuts are tightened evenly. Tighten until the piping flanges come in contact with the side of the body. (Fig. 14)



(Fig. 14)

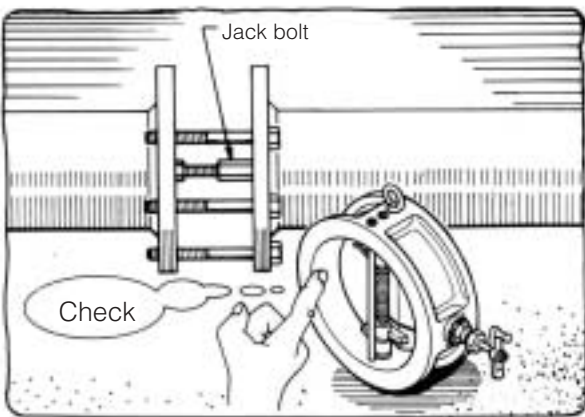
## HANDLING PRECAUTIONS AFTER INSTALLATION



(Fig. 15)

- (1) Before beginning operation, air-purge the outside of the piping and clean the inside of the piping by running water through the piping.
- (2) Prior to operating, increase the internal pressure of the piping and check for possible leakage from the flanges by employing soapy water or similar. (Fig. 15)
- (3) If leakage is observed from the flanges, release the internal pressure and remove the Bata-Check from the piping. Check that there is nothing wrong with the Bata-Check flange and piping gasket.

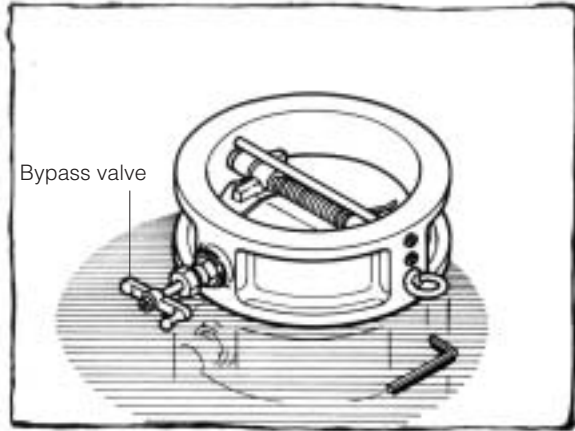
## INSPECTION AND MAINTENANCE



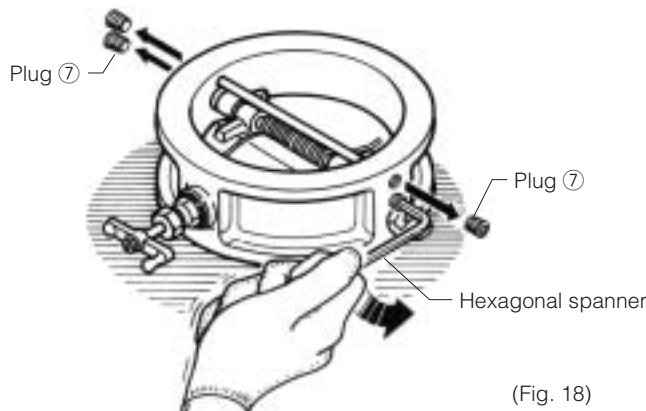
(Fig. 16)

- (1) **Periodic inspection**  
Perform an inspection once per year and check for disc corrosion and wear of the seat ring.
- (2) **Abnormal operation**  
Abnormal operation is usually caused by accumulation of foreign material or damage to the seat ring. If foreign material has accumulated and the disc is in the fully open position, it can be removed by maintaining the fully open position and flushing it out. If that does not work and if the seat ring is damaged, remove the Bata-Check from the piping and inspect it. (Fig. 16)

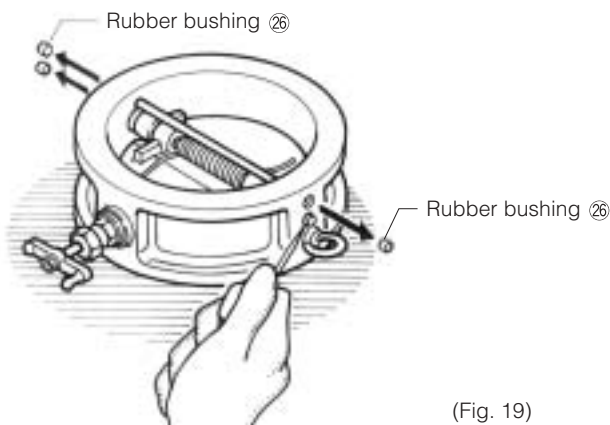
# DISASSEMBLY AND ASSEMBLY PROCEDURE



(Fig. 17)



(Fig. 18)



(Fig. 19)

## Disassembly Procedure

(1) Turn so that the secondary side (side where pin is visible) is facing upward and place the Bata-Check on a horizontal surface. (Fig. 17)

Never disassemble the bypass valve (903C and 904C). Doing so may prevent you from achieving complete closure.

(2) Remove the 4 plugs ⑦ on the side of the body using a hexagonal spanner. (Fig. 18)

For types with nominal size of 200 mm to 300 mm, remove the 4 hexagon nuts ⑦.

### 901C and 903C

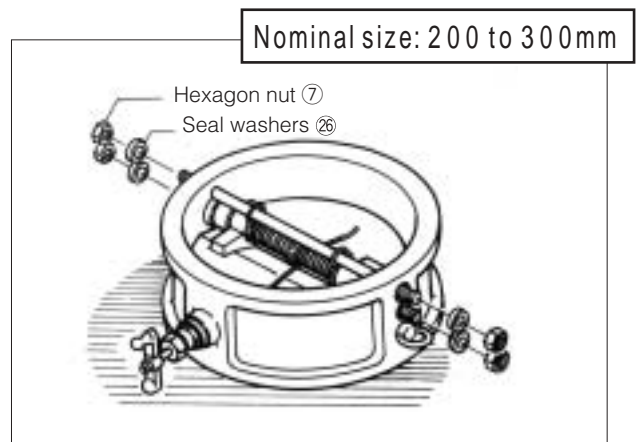
50mm to 100mm	1/8 (5 mm hexagon hole opposite side distance)
125mm, 150mm	1/4 (6 mm hexagon hole opposite side distance)
200mm, 250mm	M10 (16 mm hexagon nut opposite side distance)
300mm	M12 (18 mm hexagon nut opposite side distance)
350mm, 400mm	1/2 (10 mm hexagon hole opposite side distance)
450mm	3/4 (14 mm hexagon hole opposite side distance)

### 904C

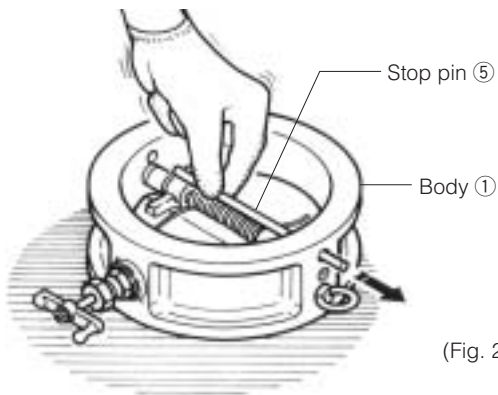
50mm to 150mm	1/8 (6 mm hexagon hole opposite side distance)
200mm, 250mm	M10 (16 mm hexagon nut opposite side distance)
300mm	M12 (18 mm hexagon nut opposite side distance)

There are 4 rubber bushings ⑫ in between the plugs ⑦ you removed and the hinge pin ④ and the stop pin ⑤. Remove these with a sharp pointed tool such as an awl. Be careful not to lose the rubber bushings. (Fig. 19)

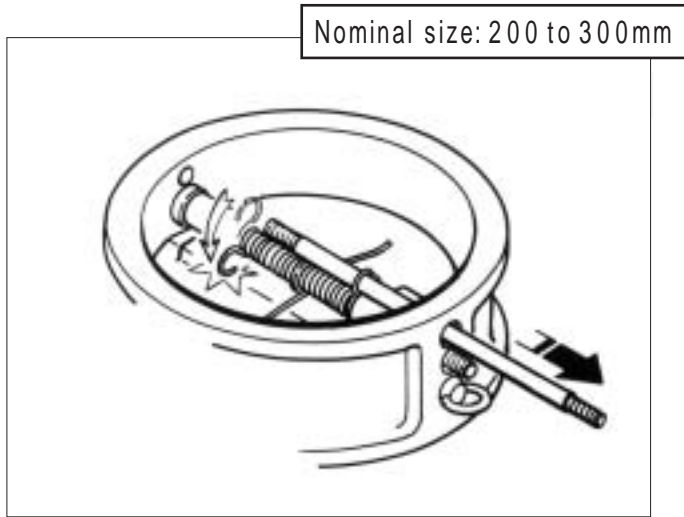
For types with nominal size of 200 mm to 300 mm, remove the seal washers ⑫ from the hinge pin ④ and the stop pin ⑤. (Fig. 20)



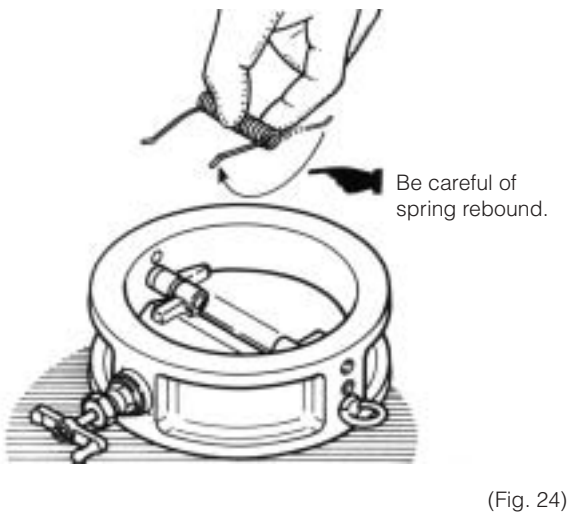
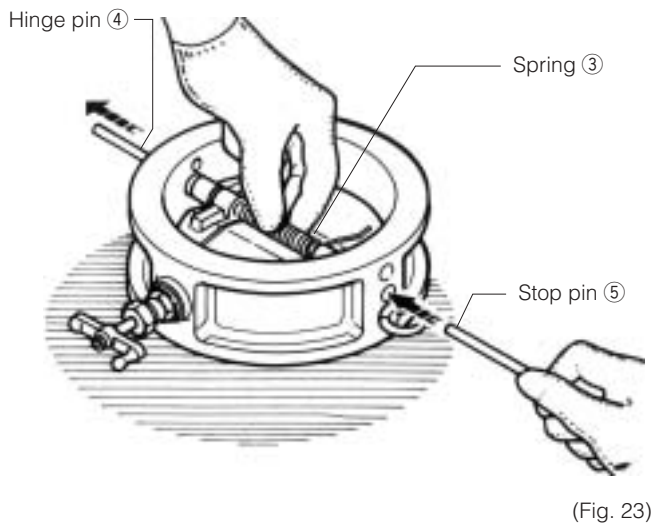
(Fig. 20)



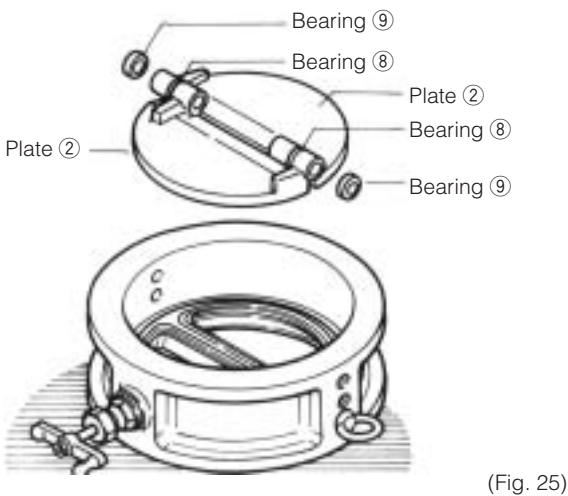
- (3) Remove the stop pin ⑤ (pin on upper side) from the side of the body ①. (Fig. 21)
- For types with nominal size of 200 mm to 300 mm, the tension on one side of the two springs ③ is held by the stop pin ⑤. Be particularly careful of spring rebound when removing the stop pin ⑤. (Fig. 22)



- (4) While lightly retaining by hand the spring ③ (2 in nominal size 200 mm or higher types and 1 in nominal size 150 mm or lower types) insert the previously removed stop pin ⑤ into the hole on the side of the body and push out the hinge pin ④ approximately half way. (Fig. 23)

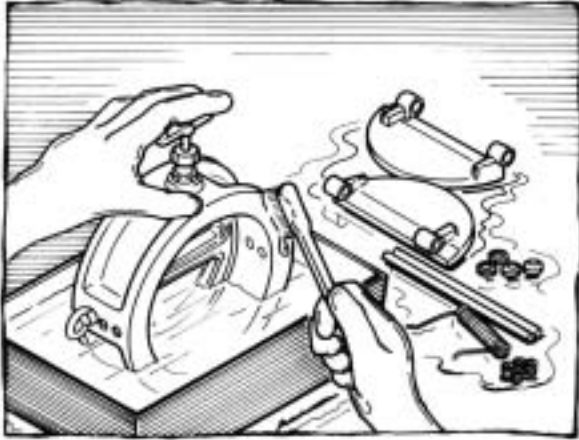


- (5) While retaining the spring ③ by hand, pull out and remove the hinge pin ④ and stop pin ⑤. When doing so, use caution since the spring ③ will fly out if the pin is removed without retaining the spring ③ by hand. Next, remove the spring ③ while releasing the hand that was retaining it. (Fig. 24)



- (6) Remove the plate ②. (Fig. 25)
- Be careful not to damage the protruding part of the rubber seat and the surfaces where the plates contact the seat, since this can cause seat leakage.
- (7) Remove the 2 bearings ⑧ and the 2 bearings ⑨.

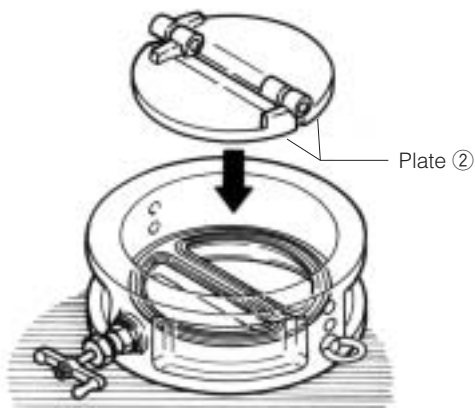
## Assembling Procedure



(Fig. 26)

- (1) Before assembly, clean all parts well using a cleaning fluid such as alcohol or a neutral detergent and make sure that none are damaged or abnormal. Pay particular attention to and inspect the protruding part of the seat and the surfaces where the plates contact the seat. If you find any damage or abnormality in a part, we recommend that you replace it with a new one. (Fig. 26)

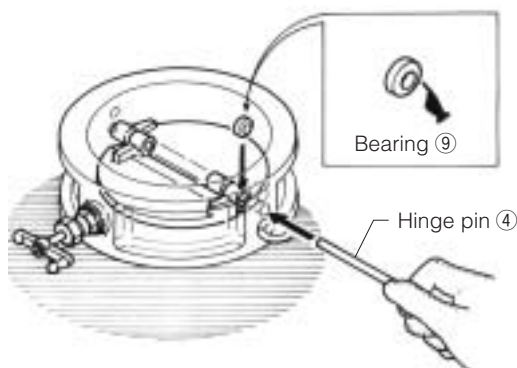
EPDM rubber is used in the 904C (stainless steel Bata-Check) rubber seat. Never use a lubricant.



(Fig. 27)

- (2) Any parts judged unusable or bearings, rubber bushings and seal washers that have deteriorated due to the passage of time (even if not showing signs of wear) should be replaced with new parts.

- (3) Orient the body ① as it was during disassembly, and place in on a horizontal surface.

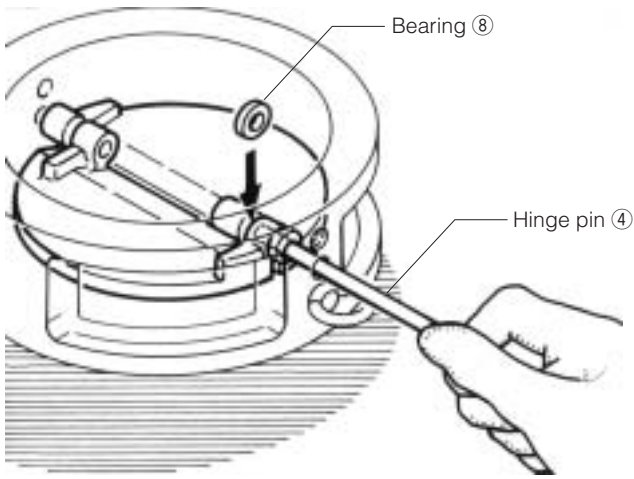


(Fig. 28)

- (4) Aligning the 2 plates ② with the tension in the center of the body, line them up as they were originally. (Fig. 27)

- (5) Insert the bearing ⑨ (rounded on one side) between the body ① and the plate ③ and then pass the hinge pin ④ through the lower hole on the side of the body until it passes the bearing ⑨. (Fig. 28)

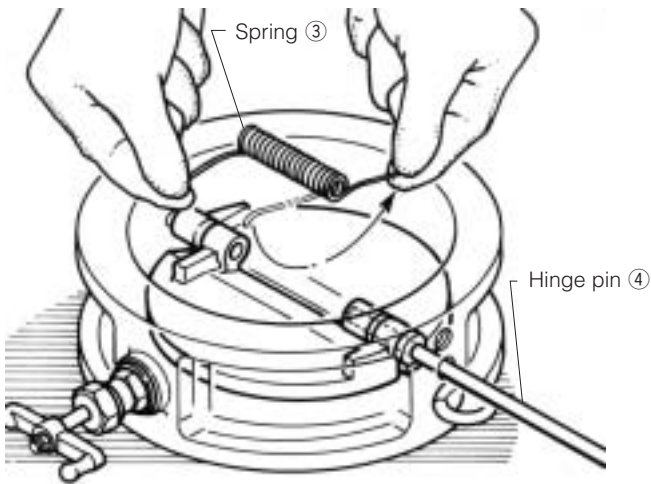




(Fig. 29)

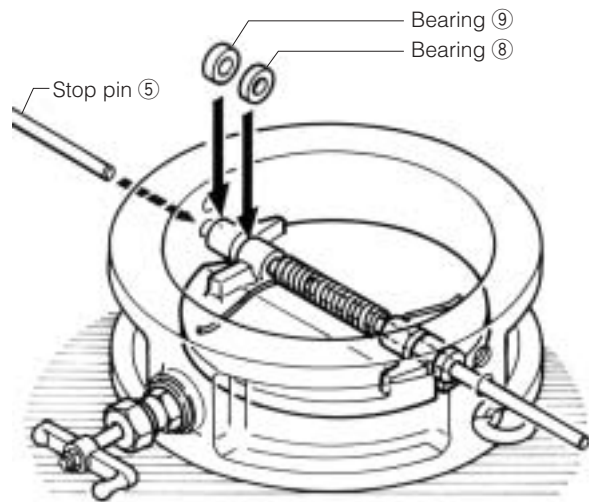
(6) Insert bearing ⑧ (finished on both sides) in between the two plates and pass the hinge pin ④ through until it passes the bearing ⑧. (Fig. 29)

(7) Place the spring ③ at the center of the plate ② and pass the hinge pin ④ through the spring ③. Make sure the orientation of the spring ③ is correct. (Fig. 30)



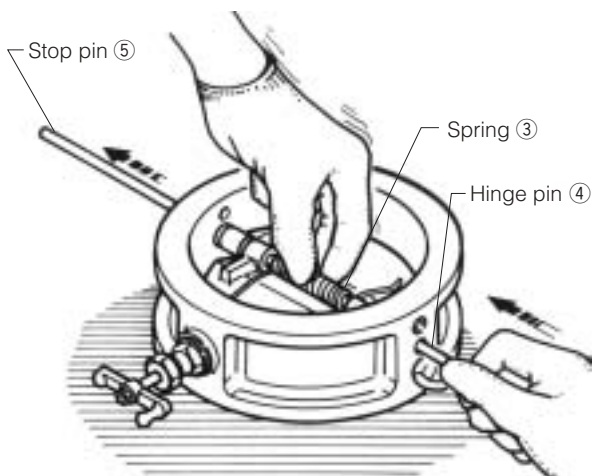
(Fig. 30)

(8) Partially insert stop pin ⑤ into the lower hole on the opposite side of the body. Insert bearings ⑧ and ⑨, and then continue inserting the stop pin ⑤ until it passes through both of them. (Fig. 31)



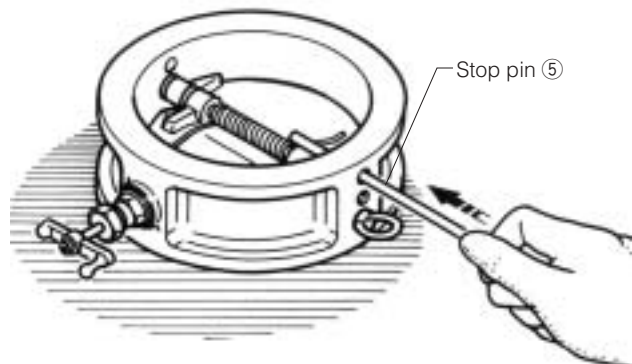
(Fig. 31)

(9) While retaining the spring ③ lightly by hand from above, push through the hinge pin ④ until the stop pin ⑤ comes out. (Fig. 32)

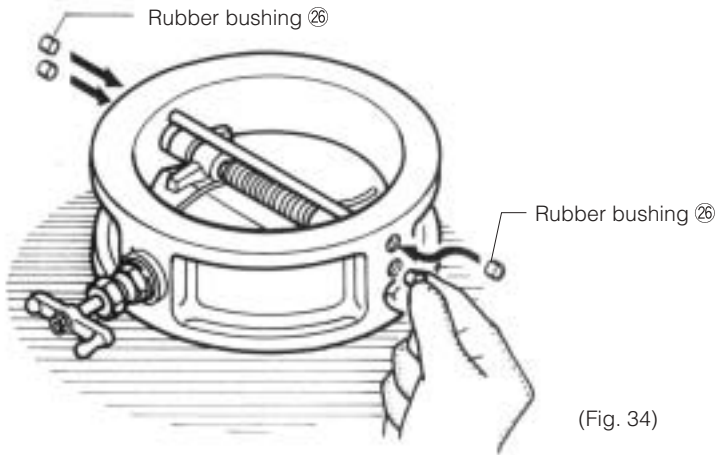


(Fig. 32)

(10) Insert the stop pin ⑤ into the upper hole on the side of the body. (Fig. 33)



(Fig. 33)

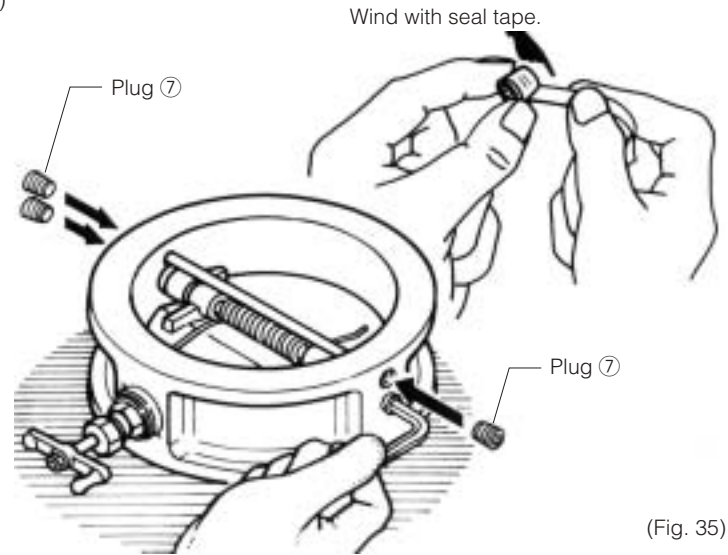


(Fig. 34)

(11) Insert the rubber bushings ⑳ into the 4 holes on the side of the body (except types with nominal size 200 mm to 300 mm). (Fig. 34)

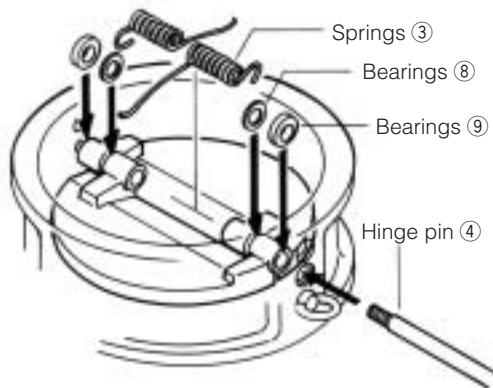
(12) Wind seal tape around plugs ㉑ and then screw firmly into the sides of the body. (Fig. 35)

To prevent leaks from the side of the body, always wind seal tape around the plugs ㉑ or coat with a sealant that will achieve the same result.



(Fig. 35)

Nominal size: 200 to 300mm



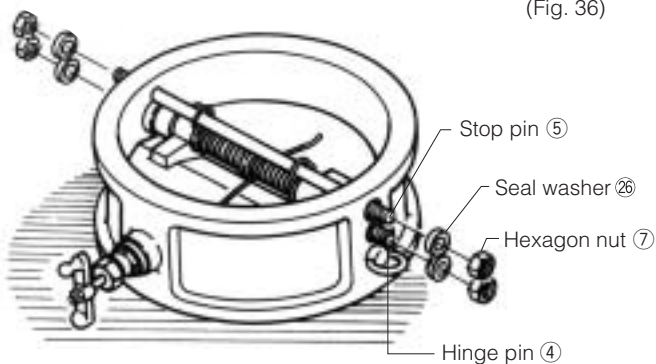
(Fig. 36)

For types with nominal size of 200 mm to 300 mm, assemble by inserting hinge pin ④ from the side of the body while ensuring that the orientation of the 2 bearings ⑧, the 2 bearings ⑨ and the 2 springs ③ is correct. (Fig. 36)



(Fig. 37)

While cocking the spring ③ from the "U" shaped side in the direction that produces tension, push the stop pin ⑤ so it goes through and supports the "U" shaped part in order to maintain tension on the spring. (Fig. 37)



(Fig. 38)

Secure the hinge pin ④ and stop pin ⑤ to the body with the seal washers ㉒ and hexagon nuts ㉓ in four locations.

Apply LOCTIGHT 262 (Henkel Japan, Ltd., Loctight Division) to the screw threads of hinge pin ④ and stop pin ⑤. (Fig. 38)

(13) Test that operation is normal by moving the plates ② with your hand.

# REQUIRED NUMBER AND SIZE OF PIPING BOLTS

## 901C/903C/904C/906C Piping bolts and nuts sizes

Nominal size		903C/904C	901C	906C
		JIS 5K		JIS 16K, JIS 20K
mm	inch	Hexagon bolts and nuts	Long bolts and nuts	Hexagon bolts and nuts
50	2	4-M16×120×38	—	8-M16×120×40
65	2 1/2	4-M16×120×38	—	8-M16×130×45
80	3	8-M16×120×38	—	8-M20×150×55
100	4	8-M16×130×44	—	8-M20×150×55
125	5	8-M20×140×52	—	8-M22×170×55
150	6	8-M20×150×52	—	12-M22×190×55
200	8	12-M20×170×52	—	12-M22×230×75
250	10	12-M22×190×56	—	12-M24×250×75
300	12	16-M22×230×56	—	16-M24×290×75
350	14	—	16-M22×300×45	—
400	16	—	16-M24×320×50	—
450	18	—	20-M24×320×50	—

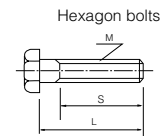
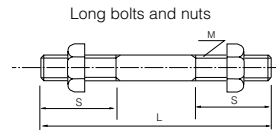
Remarks:  
 \*Please use a hexagon nut with 80% threading.  
 \*Material: "SS400".

The bolt lengths are in accordance with JIS and thickness of steel flanges.

### Example

Long bolts: 16 - M22 × 300 × 45  
 Quantity      Nominal size (M)      Length of bolt (L)      Effective screw length (S)

Hexagon bolts: 4 - M16 × 120 × 38  
 Quantity      Nominal size (M)      Length of bolt (L)      Effective screw length (S)





# APPLICABLE PIPE LIST IN CASE OF A AND B

## 901C/903C/904C/906C Applicable pipe list in case of A

### 903C/904C/906C

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S	Minimum internal diameters of piping (mm)		
mm	inch							903C/904C	901C	906C
50	2		-					44	-	38
65	2 1/2		-					53	-	52
80	3		-					69	-	61
100	4		-					91	-	94
125	5		-					121	-	108
150	6		-					146	-	127
200	8		-					189	-	154
250	10		-					241	-	213
300	12		-					288	-	228

### 901C

350	14					-	-	-	270	-
400	16					-	-	-	340	-
450	18					-	-	-	400	-

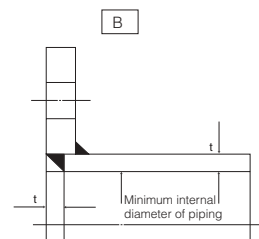
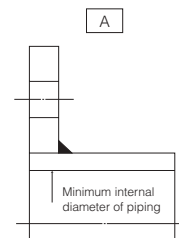
## 901C/903C/904C/906C Applicable pipe list in case of B

### 903C/904C/906C

Nominal size		SGP	STPY	Sch20	Sch40	Sch10S	Sch20S
mm	inch						
50	2		-				
65	2 1/2		-				
80	3		-				
100	4		-				
125	5		-				
150	6		-				
200	8		-				
250	10		-				
300	12		-				

### 901C

350	14					-	-
400	16					-	-
450	18					-	-



Remark: : Installation possible, -: No standard





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