



# *USER INSTRUCTIONS*

## *Serck Audco Slimseal Wafer-Type Butterfly Valves*

*SREEIM0006-02 06/13*

*Installation  
Operation  
Maintenance*



*Experience In Motion*



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## **1. STORAGE**

On receipt, check that the valves and accessories are intact. Ensure that the valve is in a 'crack-open' position so that the elastomer seat is not under compression, and at the same time the disc does not protrude outside valve body.

End protectors (stickers) on either side of the valve should be kept in tact and be removed only at the time of installation. Direct exposure to sunlight can deteriorate the elastomer.

The valves should be stored in a covered area. If covered area is not available, any waterproof covering material should be spread over the valves and the valves should be kept on a wooden pallet at least 6" above the ground level.

Do not apply tar, paint, grease or any other material inside the valve or on the shaft as this would impair the performance of the valve.

While transporting the valve from storage area to installation site, it should not be dragged on the ground.

## 2 IDENTIFICATION OF VALVES

Each valve has a metal name plate attached to the body on which is marked the identifying “FIG.”, along with various other details such as the materials of construction, Limiting temperatures, Seat rating pressure as shown below. Cross-referencing these details with catalogue information will enable the valve to be identified.

Manufactured in India by FICPL	
Licensed by	
<b>ARGUS</b> - Germany	
EN 593	
FIG	
PN	I DN
SHAFT	II DISK III
BODY SEAT	IV
MAX. PRESSURE	V BAR
MIN TEMP.	-10 °C
MAX TEMP.	
MINERAL OIL AND FUELS	VI °C
OTHER LIQUIDS	VII °C
DRY SERVICE	VIII °C
DVGW	
SERIAL NUMBER	
YEAR	
 0496	

FLOWERVE FLOW CONTROL (UK) LTD	
SERCK AUDCO VALVES 	
BS EN 593	
FIG	
PN	I DN
SHAFT	II DISK III
BODY SEAT	IV
MAX. PRESSURE	V BAR
MIN. TEMP	-10 °C
MAX. TEMP (REFER IOM)	VI °C
FFC UK P.O. No.	
LINE ITEM No.	
SERIAL No.	
MONTH / YEAR	
 0086	

### **3. CONSTRUCTION**

AUDCO Wafer type butterfly valves are of compact design and lightweight.

The rubber lined butterfly valves provide tight shut-off. The disc seats on to an integrally moulded elastomer in the body. The disc is operated by a shaft driven internally.

#### **IMPORTANT**

These valves do not require a separate flange gasket while mounting on the pipeline. The elastomer seat itself projects outside the body so as to form a gasket.

When the companion flanges on either side are tightened, the elastomer gets compressed and provides required sealing.

#### **NECK LENGTH**

There are two types of neck lengths, Standard Neck & Long Neck as shown below.

Long neck allows insulation over pipe line. For Long Neck available sizes please refer factory.

AUDCO wafer type Butterfly valves can be categorised into three types depending on the type of application. This manual covers the following types:

- a. Slimseal - used for general purpose.
- b. Chemseal - used in chemical and corrosive services.
- c. Cleanseal - for food & hygienic services.

## 4. INSTALLATION

- a. Handle the valve with appropriate lifting equipment. Use lifting lugs/eye bolts only for handling. Prop up the valve temporarily if necessary. Keep the valve in nearly closed position while installing.
- b. Do not use rope or chain through valve port. Use the bolt relief holes at the top of the body for passing the rope or chain.
- c. Carefully check the cleanliness of the companion flanges faces and clean if necessary.
- d. Centre the valve such that the shaft is in a centre position. Do not use valve as jack to pull the pipe into alignment.
- e. Fit the flange bolting on both sides and tighten. No gasket is required separately.
- f. Ensure the valve interiors and adjacent piping are cleaned prior to tightening the joints.
- g. Tighten the bolts, working diagonally to the required torque, using a torque wrench.
- h. Ensure that the pipeline stresses are not transferred on to the valve as this can result in leakage across the seat or difficulty in operation.
- i. In new pipelines when weld neck companion flanges are used, centre each flange bore to the valve bore and run the bolts through. Tack weld the pipes to the pipes to the flanges and remove the bolting to take out the valve; then finish weld the flanges to pipe so that the elastomer seat is not damaged by the welding.
- j. As no separate gasket is required between the flanges, flat face flanges are recommended. In case of valves with EPDM, Hypalon or Silicone, it must be ensured that the flange faces are totally free from grease / oil which will swell the elastomers.
- K. Valves are not suitable for end line service and fire safe applications.

**4.1 METHOD OF BOLTING**

The method of bolting the valve in to the pipe will vary according to whether the valve is flangeless or lugged and whether the lugs are drilled with clearance holes or threaded holes. If the valve is intended for end-of-line use, it must be of lugged pattern with threaded holes and bolting must hold the valve securely to the upstream flange. The following illustrations show various alternative bolting arrangements.

**4.2 Do's & Don'ts**

Correct Installation:

- a.) Mating pipe flanges should be kept well apart to allow free access for the valve. The disc should be slightly off its seat but not protruding to damage the disc.
- b.) Disc in the same position, (slightly open) when flange bolts are inserted to ensure that no distortion of the seat takes place on final tightening.
- c.) Before evenly tightening the flange bolts, see that the valve is centralised and then if possible, fully open with care to ensure the disc does not foul the internal bore of the pipe.

Incorrect Installation:

- a.) Mating flanges are too close to allow access for the valve and the disc is in the wrong position.
- b.) Disc again is in the wrong position (closed) and this will firstly distort the seat on installation and secondly cause excessive torque on initial operation.
- c.) If the valve is not centralised between the adjoining pipe flanges this will result in excessive torque, damage damage to the disc and eventual leakage.



## 5. INSTALLATION INSTRUCTION

### 5.1 Sequence of Flange Tightening

The sequence to be followed for bolts tightening while installation of valve is shown below.

Insert 4 bolts near to neck area and tighten the bolts as per the sequence given in the figure evenly and not fully tightened.

Check the valve is being concentric to the pipeline and ensure smooth operation of valve.

If further bolts are to be tightened, follow the similar sequences i.e. tighten the bolts diagonally and not fully tightened.

Now tighten all the bolts diagonally till the clamping faces of flange just touch the body metal end faces. Over tightening is not necessary and to be avoided.

These valves are suitable for installation between pipe flanges listed below:

1. BS 4504 - PN10 / DIN ND10
2. BS 4504 - PN16 / DIN ND16
3. ANSI B16.1 - Class 125 / ANSI B16.5 - Class 150
4. BS10 - Table D
5. BS10 - Table E
6. AS 2129 Table D
7. AS 2129 Table E

### 5.2 Minimum inside diameter of pipe

Lined Pipes and Heavy walled pipes should have a minimum inside diameter well clear of Dimension “ZN” (Refer Figure shown below) in Disc full open position.

Valve size in mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
“ZN” Dimn. of protruding disc	27	47	63	83	107	136	185	234	280	325	376	424	476	573

When installing the valve between existing pipe flanges, the flanges are required to be spread sufficiently while placing the valve between them to prevent any damage to the sealing end face, which acts as the gasket. Pipeline is expected to provide for this flexibility.

## **6. VALVE MOUNTING**

AUDCO Butterfly valves are bi-directional and can be mounted in vertical or horizontal or angular pipelines with shaft in any position.

### Slurry service

The valve is to be mounted on horizontal pipeline with shaft in the horizontal position with lower disc edge opening in the down stream side for best results.

## **7. START-UP**

After installation, the pipeline should be cleaned by compressed air or by flushing with water, keeping the valve fully open. The use of temporary filters on the upstream side of the disc is recommended to avoid any damage caused by the transportation of abrasive particles. Ensure that the pipeline stresses are not transferred to the valve as this can distort the seating and result in leakage around the seat or higher torque.

## **8. HYDRAULIC TEST OF THE INSTALLATION**

AUDCO Butterfly valves are individually pressure tested in our factory. If a hydraulic test of the piping installation is to be undertaken, make sure that the valve disc is in the open position and check that the valve material installed is compatible with the test medium. Test pressure be limited to the maximum rated pressure.

## **9. OPERATION**

### **9.1 Manually operated valves**

(i) AUDCO Butterfly valves up to 300mm can be operated by wrench and sizes above 300mm are supplied with gear unit. Gear Unit can be fitted for any size on specific request at the time of ordering.

(ii) VALVES WITH FC LEVER AND LATCH ARRANGEMENT:

The general construction details of FC lever and latch fitted on to valve is shown below

Press the latch upward to release the latch from notched indicator. At pressed condition operate the valve. If the pressing is not done fully while operation, latch will get damaged by the notched indicator.

(iii) GEARED VALVES: All gearboxes have an indicating pointer on the gearbox, which shows the angular movement of the disc as well as the open / closed positions. They also have a positive stop in both the open and closed positions. When closing the valve, the hand wheel should be turned only up to that position where the indicating pointer matches with the letters "CLOSE" on the gear box case. This by itself will ensure proper sealing. There is no need to "slam" the hand wheel till it jams. This practice is neither necessary nor recommended. imilar is the case when opening the valve.

### **9.2 Electrically operated valves**

- Electrical actuators are fitted to the gear unit or directly mounted.
- For operational details consult the manufacturer's instruction manual and the appropriate wiring diagram.
- Ensure that electrical connections are given as indicated in the wiring diagram for the specific actuator.
- Before making a test run move the disc to an intermediary position by means of the hand wheel.
- Start the motor and see if the working direction is correct.

### **9.3 LIMIT SWITCH SETTING**

The actuator limit switch is set in the factory. However, for valves with extension spindle, actuator is approximately pre-set and should be reset at site. The pre-setting can also be modified if required once the valve has been put into service.

Do not disturb the mechanical stops in the quarter turn gear unit, which are factory set.

## 10. MAINTENANCE

In normal use, these valves are maintenance free and require no attention. They are literally 'fit & forget' valves.

### 10.1 Seat Leak

If there is a leak across the seat, check disc surface. If the disc is damaged, it can be replaced as detailed below:

### 10.2 Dismantling and Re-Assembly

Generally there is no need to dismantle our valves. However, if it is desired, the valve can be dismantled and reassembled.

To dismantle the valve, proceed as follows.

#### 10.2.1 50-300mm SLIMSEAL, CHEMSEAL & CLEANSEAL BUTTERFLY VALVES

##### Dismantling

1. Remove the gear unit or actuator if fitted. The wrench may be left in position on wrench operated valves.
2. Remove the socket set screw and pull out top shaft.
3. Remove the bottom shaft-retaining pin.
4. Insert a long drift through the top shaft hole and drift out the bottom shaft.
5. Pull out the disc.

##### Re-Assembly

1. Clean body, shafts, disc etc.  
NB: After cleaning and prior to assembly, a light application of silicone grease to all surfaces of all mating components is recommended (No other grease to be used, which may be harmful to certain kinds of elastomers).
2. 'O' ring on bottom shaft should be replaced with new.
3. For 50mm to 200mm stainless steel disc fitted valves, fix new PTFE bearing into disc if the bearing has suffered any damage.
4. Push disc into bore of body in fully open position and ensure position of square hole in disc towards top platform end of body.
5. Fit top & bottom shaft and ensure top shaft "UNI SQUARE" & "SHAFT GROOVE" position should be as per above figure.
6. Align corresponding holes in body and bottom shaft & fit new bottom shaft-retaining pin.
7. Align groove in top shaft with corresponding hole in body and tighten new socket set screw applied with thread lock, till it touches the shaft & unscrew 1/2 turn to ensure it does not 'jam' the shaft.
8. Fix weather seal on top of valve.
9. Fit operating mechanism and ensure clockwise rotation for close operation.
10. Check the disc/wrench orientation is correct. Lever indicates the position of disc in the valve. "Lever along the pipeline" will mean, "Disc open", and "across the pipeline" will mean, "Disc closed".

## 10. MAINTENANCE (Cont.)

### 10.2.2 350-600mm SLIMSEAL Butterfly Valves

#### Dismantling

1. Remove the gear unit or actuator if fitted.
2. Remove the socket set screw and pull out top shaft.
3. Remove the screws and remove bottom cover plate, lock plate, plug & ring nut.
4. Remove the bottom shaft-retaining pin.
5. Insert a long drift through the top shaft hole and drift out the bottom shaft.
6. Pull out the disc.

#### Re-Assembly

1. Clean body, shafts, disc etc.  
NB: After cleaning and prior to assembly, a light application of silicone grease to all surfaces of all mating components is recommended (No other grease to be used, which may be harmful to certain kinds of elastomers).
2. Push disc into bore of body in fully open position and ensure position of square hole in disc towards top platform end of body.
3. Fit top & bottom shaft and ensure top shaft "UNI SQUARE" & "SHAFT GROOVE" position should be as per above figure.
4. Align corresponding holes in body and bottom shaft & fit new retaining pin.
5. Align groove in top shaft with corresponding hole in body and tighten new socket set screw applied with thread lock, till it touches the shaft & unscrew 1/2 turn to ensure it does not 'jam' the shaft.
6. Fix lock plate with gasket or 'o' ring to bottom platform of body.
7. Lock the bottom shaft with plug and ring nut adjusting suitably to avoid seat leak.
8. Fix the bottom cover plate with 'o'ring or gasket to the platform of body.
9. Fit operating mechanism and ensure clockwise rotation for close operation.

## 11. GENERAL PRECAUTIONS

AFTER ASSEMBLING ANY SLIMSEAL, CHEMSEAL OR CLEANSEAL VALVE, THE FOLLOWING PRECAUTIONS TO BE FOLLOWED TO ENSURE TROUBLE FREE PERFORMANCE.

1. If any further cleaning is necessary this should be done with diluted detergent followed by water and should not be with a hydrocarbon or similar solvent.
2. Check complete operation of valve and if necessary adjust the `open` and `shut` positions of gear boxes and actuators to ensure correct operation.
3. Pressure test the valve before putting it back to work. If in doubt about the test procedure, please refer BS EN: 593 latest amendments.
4. Do not expose elastomer seats to sunlight or ozone for extended periods (In case of black nitrile liner, its contact with ozone should be totally avoided).
5. Foreign material in the butterfly valve can damage elastomer seat when operated. Ensure valve interiors and adjacent piping are thoroughly cleaned prior to installation.
6. Ensure the valves are not subjected to pressures above rated pressures of the valves (Black nitrile / EPDM 16 bar; White nitrile - 14 bar; Hypalon / Viton - 12 bar, Silicone - 6 bar).
7. Ensure end faces are suitably protected by end protectors to prevent damage to disc and body lining while in storage.
8. If pipelines are being purged prior to commissioning, this should be done with the valves in the fully open position. Care to be taken to ensure that the purging pressure does not exceed the test pressure of the valve.





**Serck Audco Valves**  
**a division of Flowserve GB Ltd**  
Burrell Road, Haywards Heath  
West Sussex RH16 1TL  
United Kingdom  
Telephone: +44 (0)1444 314560  
Telefax: +44 (0)1444 314561  
Email: savukinfo@flowserve.com

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***To find your local Flowserve representative***  
or for more information about Flowserve Corporation, visit  
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