

**Series SL, SLT and SLK Butterfly Valves
PED 2014/68/EU Group 1-2 Class I, II, III**



Installation, Maintenance and Operation Instructions

1. GENERAL

1.1 CONSTRUCTION

Small size and light construction give an advantage in installation, stocking and transporting. Sizes from DN 300 to 600 are equipped with ears, which helps the centring of the valve during the installation. Series SLK is one-flanged body.

Constructional dimensions are according to EN 558:2017. Construction according to EN 593:2017. Only the disc and the seat body of SL butterfly valves are in contact with the medium. The most common combination is an EPDM seat body with a CF8M disc.

1.2 TIGHTNESS

SL butterfly valve is liquid and gas tight in both flow directions. By closing the valve, the disc is pressed automatically into right position. The support ring in seat body makes the valve tight, also by vacuum use and suitable for high flows. Tightness test is made for every valve according to standard EN 12266-1:2012. (1,5 x shut-off pressure).

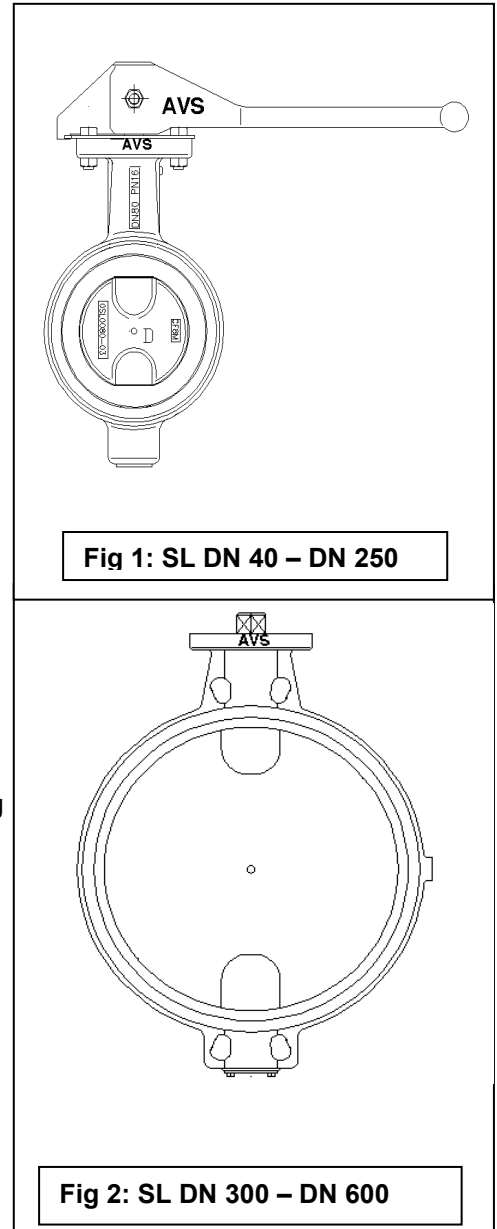
1.3 EASY INSTALLATION AND MAINTENANCE

Because the sealing material of the seat body is vulcanized to the support ring (and not to body), the seat body is easy to replace by a new one. Loosening the stems, disc and sealing does not require any special tools. When the valve is installed between flanges, no separate sealing is required. The seat body works as a sealing against the flange.

SL butterfly valves are equipped with mounting flange for actuator according to ISO5211. This makes installation and loosening of actuators easy. The valve can remain in the pipeline during loosening.

1.4 TECHNICAL SPECIFICATION

Operating temperature	0...+180° C
Max. working pressure	DN 40 - 600 16 bar
Max. shut-off pressure	DN 40 - 600 10 bar
Construction	EN 593:2017
Face-to-face dimensions	EN 558:2017
Tightness test	EN 12266-1:2012



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2. TYPEMARKING AND MATERIALS

SL	0100	---	V	H	E	R	K1	07
1.	2.		3.	4.	5.	6.	7.	8.

1.	Valve series Wafer type One-flange-body				Code SL SLK	Spare part code	
2.	Valve side DN 40 – 600						
3.	Body material Cast iron Nodular cast iron	GG25 GGG400	V P			0SLxxxx-01V (xxxx = DN size) 0SLxxxx-01P	
4.	Disc material Stainless steel Cast iron Halar coated Steel	CF8M GG25 CF8M XXXXX	H V T N			0SLxxxx-03H 0SLxxxx-03V 0SLxxxx-03T Special product	
5.	Seat body material EPDM Viton Silicone Nitrile Natural rubber White NBR Polyurethane	EPDM FPM Q NBR NR WNBR PUR	E V S N L O P			Cont. operating t°C 0°C...+120°C 0°C...+150°C 0°C...+180°C 0°C... +80°C 0°C... +65°C 0°C... +80°C 0°C... +80°C	
6.	Shaft material Stainless steel	AISI 329	R				
7.	Hand lever Hand lever K1 Hand lever K2 Hand lever P1 Hand lever P2	EN GJL-200 EN GJL-200 SS41 SS41	K1 K2 P1 P2			0SL-31K1V 0SL-31K2V 0SL-31KP1 0SL-31KP2	DN 40 – 150 DN 200 – 300 DN 40 - 80 DN 100 - 150
8.	Top flange Standard ISO 5211 Shaft DIN sq 45°						

9. LIMITATIONS

**Because of the construction of the valve, it is not suitable for the materials according to 67/548/EC with classifications E, F and O. (2 article pos. 2.a) – d)).
If necessary, the supplier/manufacturer can be asked for help by choosing the materials.
Installations into the pipeline shall not overstrain the valve body.
Misuse and changes made in the valve will invalidate the warranty and cause the expiration of CE-marking.**

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3. VALVE MARKINGS

Body material, DN size and pressure class are cast on the body. The disc of the valve has material and spare part markings. (Note: Page 2, Type marking and materials). Other markings: year of manufacture, MFG-code (e.g. Y02 AX).

Valve markings

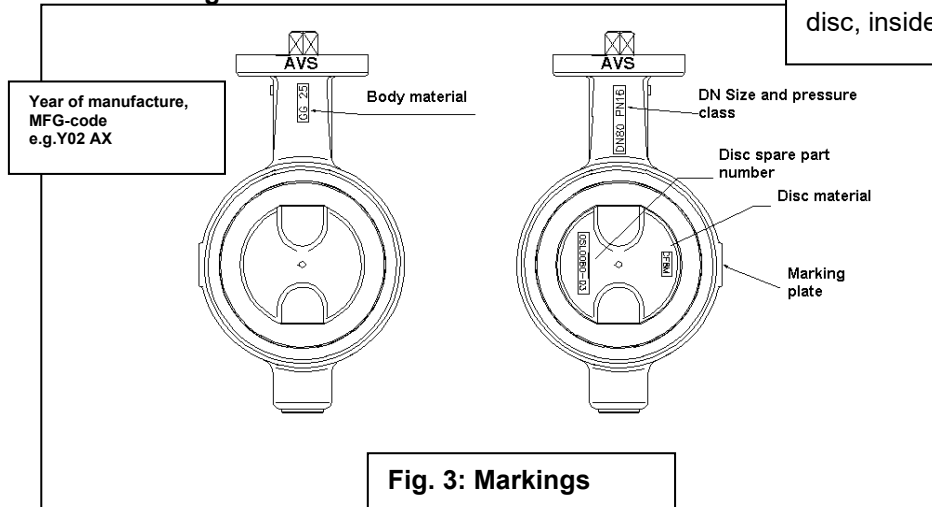


Fig. 3: Markings

4. TRANSPORT AND STOCKING

- Transport in sturdy packing.
- Do not attach ropes or hooks to the actuator's hand wheel while hoisting.
- Store in a well air-conditioned, dry room.
- Protect against humidity from the storage floor by storing on a shelf or on wooden frame.
- Cover to protect against dust and dirt.
- Store the valve in slightly open position, approx. 15-20°.

Hoisting the valve

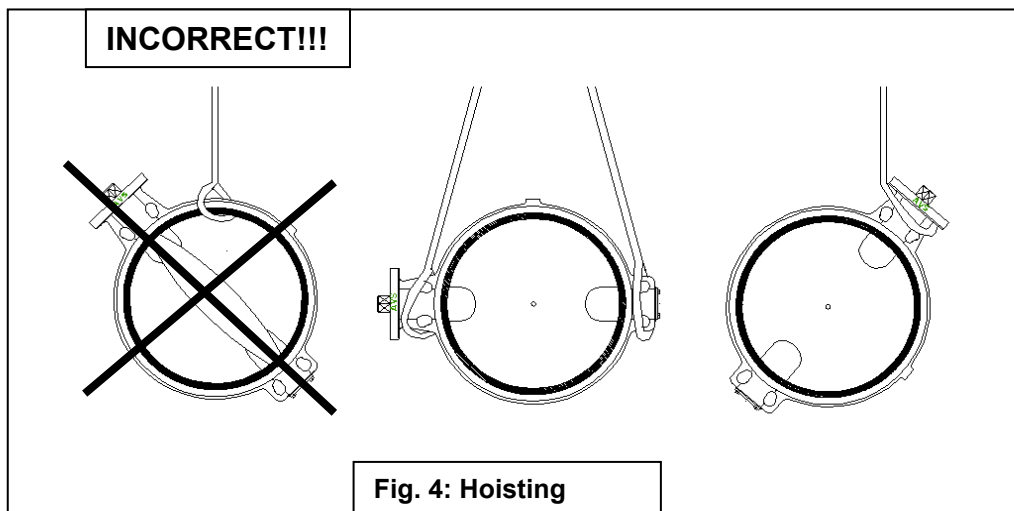


Fig. 4: Hoisting

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5. MOUNTING THE VALVE INTO THE PIPELINE (Fig. 5)

5.1

LIMITATIONS:

Because of the construction of the valve, it is not suitable for the materials according to 67/548/EC with classifications E, F and O. (2 article pos. 2.a) – d)).

The valve should be mounted into the pipeline so, that the disc is in half open position. Before proceeding with mounting, check the centrality of the valve by opening and closing it a couple of times. Before turning the disc, make sure that the seat body is undamaged and clean inside. Turning of the disc can be made easier by greasing the outer surface of the seat body with silicone spray or soapy water.

Begin the installation by setting the lower flange screws to keep the valve in position. The mounting of the bigger sizes from 300 DN to 600 DN can be helped with ears.

Install the valve between the flanges and set the rest of the flange screws. Tighten the flange screws evenly, keeping the valve carefully in the middle of the flanges. The disc can be damaged, if it gets any contact with the flanges. By using special flanges (not standard), has to be made sure that the disc is turning freely.

Make the final tightening in diagonally opposite sequence and check that the flanges are flat and parallel. Leakages, caused by differences between the flanges (if the pipeline flange is out of line), can only be repaired by using external joint-packing.

External counter-flange is recommended if the valve operates as a terminal valve (e.g. SLK) and if the pressure is >2 bar. Horizontal mounting of the valve is recommended, if sludge or mud flows in the pipeline.

LIMITATIONS: The overstraining of the valve body must be avoided by pipeline with support construction.

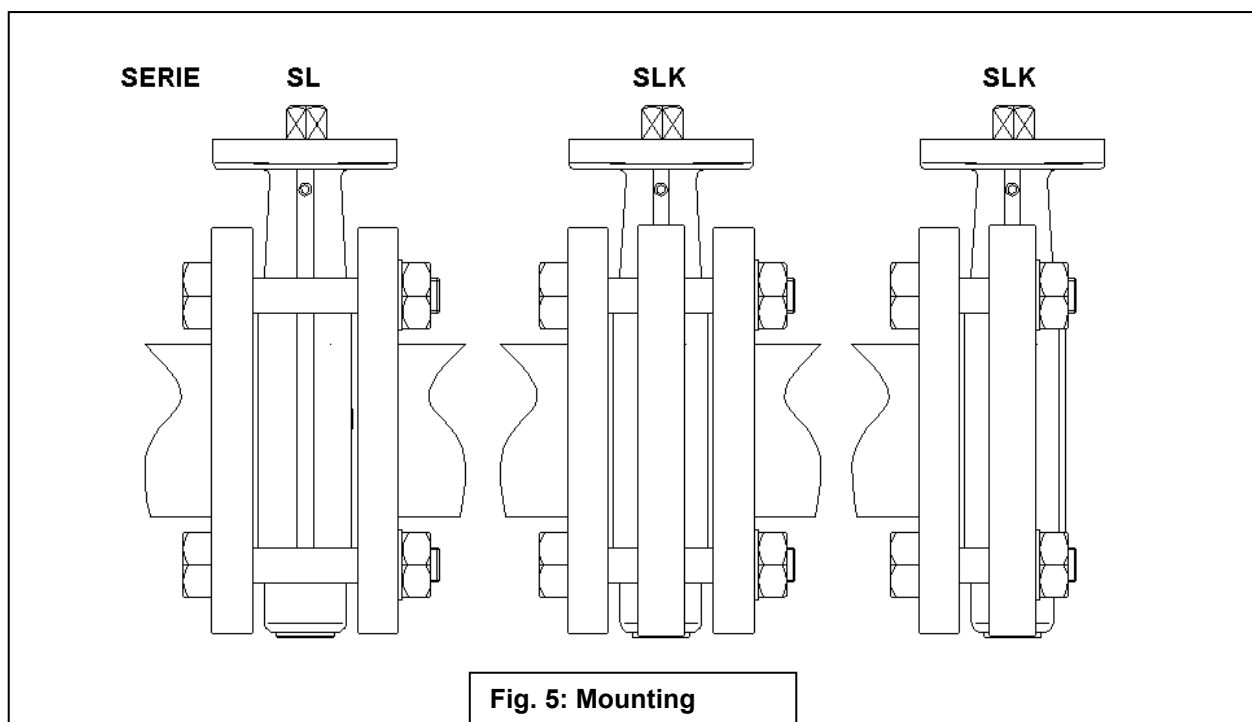


Fig. 5: Mounting

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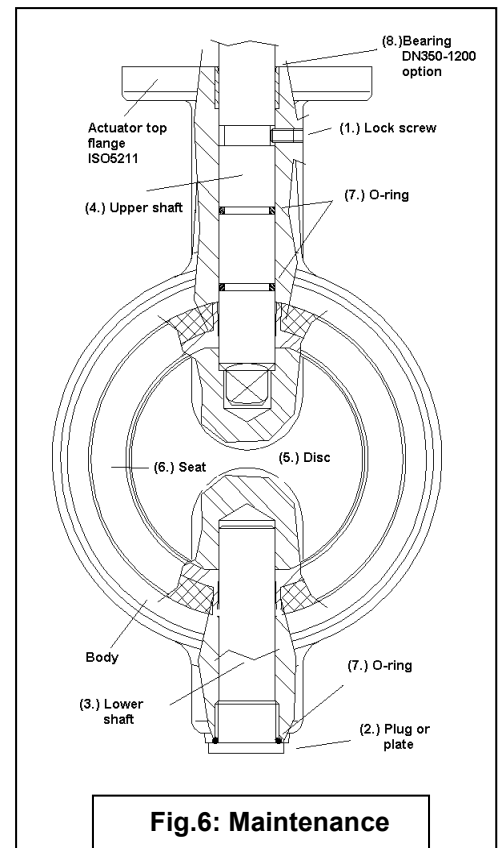
Installation, Maintenance and Operation Instructions

6. MAINTENANCE

SL butterfly valve requires no regular lubrication or other servicing measures. When needed valve parts are easy to replace without any special tools.

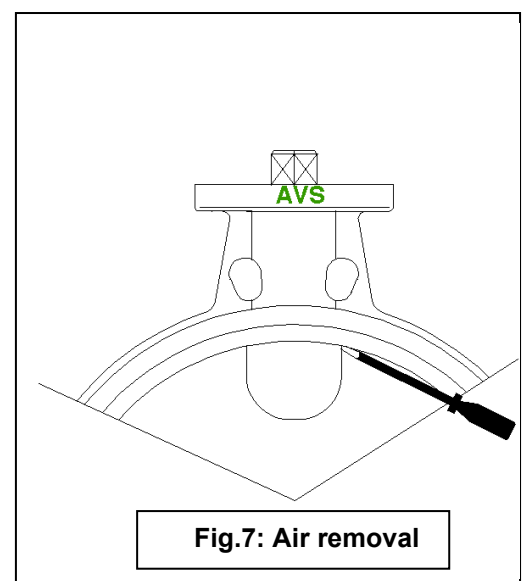
7. REASSEMBLY (Fig. 6)

1. Reassembly the valve from the pipeline and unscrew the actuator mounting screws.
2. Loosen the lock screw (1.) of the upper shaft (4.) and turn lightly out of the body some millimetre. Unscrew the plug (2.) on the lower shaft (3.).
3. Pull the upper shaft (4.) out of the body about 10-15 mm and tighten the lock screw lightly against the shaft. (Avoids o-ring (7.) damages). 6-10 mm threads make the pulling of shafts out of the body easier.
4. Pull the shafts out of the body and remove the disc. Loosen the seat body (6.) from body.
5. Remove the seat body in the same direction with the text DN40-250 PN16 and DN300-1200 cast above in the body or measure the internal dimension of the body (notice conical form of the body).



8. ASSEMBLY (Fig. 6)

1. Replace the damaged parts by new ones, place the seat body (6.) in the reverse order as disassembled (7.5) and check the centrality with help of the lower shaft (3.). Grease the shafts and the o-rings with silicone or Teflon grease. Also the outer surface of the seat ring can be sprayed to make assembling easier.
2. Place the disc in open position, square head connection to the side of the upper shaft (4.). Push the lower shaft (3.) into the valve body and mount the plug or plate.
3. Push the upper shaft (4.) into the valve body and before o-ring (7.), tighten the lock screw lightly, push the shaft into the valve body until to the disc. Strengthen the lock screw with locking liquid.
4. Push the upper shaft (4.) by turning to the square head connection of the disc (tolerance 45°), knock the shaft into the position by using soft material hammer, or use padding between hammer and the shaft. By the bigger valves, air remains between the upper shaft (4.), the o-rings (7.) and the seat ring. Air can be removed by using blunt screwdriver (Fig.7). Tighten the lock screw (1.).
5. Pressure test the valve (if possible), fasten the actuator and assembly into the pipe line.(Fig.5).



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9. CHEMICAL RESISTANCE FOR VARIOUS RUBBER QUALITIES (Quick instructions)

1. Most used gasket material, EPDM, is suitable for common mediums, from water to different acids. Mineral oils, aliphatic hydrocarbon solvents, chlorinated solvents and gases are badly or not suitable. EPDM is heat- and wear-resistant.
2. Nitrile (NBR), oil "resistant" rubber is suitable for water, mineral oils, fuel, greases and solvents. Polar solvents and oils with ester are not suitable. Nitrile is wear-resistant for lower temperatures.
3. Viton (FPM) is excellent suitable for chemicals, various oils and solvents. Swells by low-molecular ketones, becomes hard by fixed ammonia and corrodes by caustic potash and - soda. Suitable for high temperatures, wear-resistant.
4. Silicone is excellent suitable for air and high-temperature inert gases. Moderate resistance of alcohol, ketones and hot water. Silicone disperses by using strong acids and spoils in steam over 130°. Wear-resistance lower than by other rubber qualities.
5. Natural rubber (NR) is erosion-resistant. Moderate water-, acid- and alkali-resistance. Oils and hydrocarbon solvents are not suitable.
6. Polyurethane (PUR) is suitable for dry powders for example lime and cement. Polyurethane has excellent erosion resistance, but suits not for sugar.

**Conformity assessment procedure
Pressure equipment directive 2014/68/EU module H
Notified body 0424**