



Armaturen GmbH

Armaturen, Rohre, Sonderteile aus Edelstahl
fittings, pipes, special parts of stainless steel



Operating Instruction

**Leakage butterfly valve manually operated with handle
LSV07 manually operated HB04**



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2 Symbols employed



Danger indications

Danger indications are designated with the danger symbol on the left side and are framed.



Advices

Descriptions which need careful attention are designated with the advice symbol shown on the left side and are framed.

3 Drawing and parts list

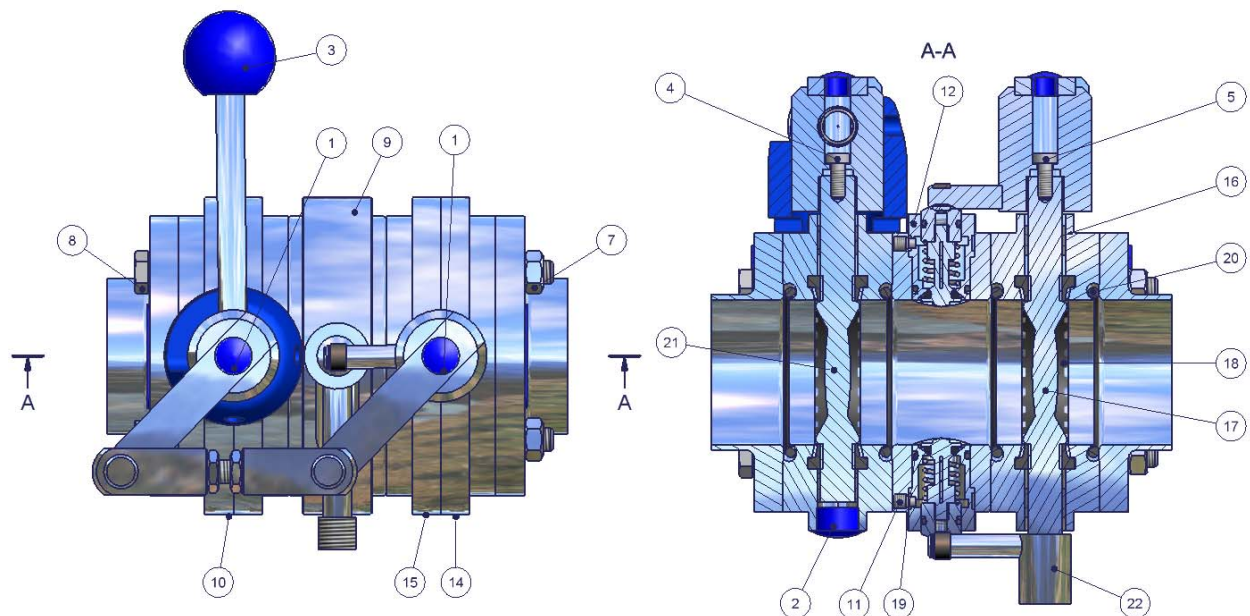


Illustration 1: Leakage butterfly valve LSV07 with handle

Table 1: Parts list

Pos.	Anzahl	Beschreibung
1	2	plastic plug
2	1	plastic plug
3	1	switch combination LSV07 manual
4	1	cheese-head screw M5 DIN7984
5	1	Zylinderschraube M5 DIN7984
6	1	cheese-head screw M5 DIN 7984 [see illustration 2]
7	4/6/8	hexagon nut DIN934 M8/M10/M12
8	4/6	hexagon screw DIN 933 M8/M10
9	1	middle flange

10	2	centrepiece consisting of pos. 13, 14, 15, 16, 17 (21), 18 and 20
11	2	setscrew DIN 915-M5
12	2	leakage seat valve LSV07 manual
13	2	cheese-head screw DIN912 M6 [see illustration 2]
14	2	butterfly valve flange SV04 between flanges
15	2	butterfly valve flange SV04 between flanges male
16	4	floating bearing
17	1	flap for leakage butterfly valve
18	2	SV04-seal
19	2	O-ring leakage seat valve
20	4	O-ring flange
21	1	butterfly valve disc
22	1	rotary knob small

4 Conventional use and mode of action

- ✓ The leakage butterfly valve is a shut-off valve for fluids. It prevents the mixture of two mediums. For control and/or cleaning of the leakage room, in the middle flange two leakage seat valves are located.
- ✓ By means of handle and switch combination the valve is opened respectively closed by a 90°-rotation of the discs (17+21).

At the same time the leakage seat valves (12) are manually opened respectively closed via compulsory control.
- ✓ To open respectively close the leakage butterfly valve, slightly pull the hand lever (3) to loosen it from the arrest and turn it 90°. After release, the lever engages in the provided boring.
- ✓ The handle is standard fitted with end position arrest.
- ✓ Floating bearings (16) integrated decrease the torque needed for operation considerably. Furthermore, butterfly valve equipped with floating bearings are superior concerning hygiene to other constructions in the area of shaft feedthrough.
- ✓ The M&S-leakage butterfly valve LSV07 is available in a DIN-finish and Inch-finish. The valves are fitted with seals of type SV04/Type98 respectively SV04/Type95.
Both types of seals guarantee a maximum vacuum safety due to their special shaping.



To achieve a spectrum of use as wide as possible, seals (18) are available in five different food safe qualities of elastomer (VMQ, EPDM, FKM, NBR, HNBR).

5 Transport and storage

5.1 Scrutinize consignment



Check if order complies to consignment on reception of the butterfly valves.

Investigate condition of the consignment and check if it is complete.

Damages in transit, which are externally visible and/or missing packing units, are to be specified on the waybill of the forwarder immediately. The forwarder is to be claimed reliable for recourse in writing immediately and M&S Armaturen GmbH is to be informed about the incident.

Damages in transit which are not perceptible immediately, should be reclaimed at the forwarder within 6 days.

Damages reclaimed later are for the account of the consignee.

5.2 Transport



The packing units/leakage butterfly valves are only allowed to be transported with appropriate hoisting devices and lifting accessories.

Please pay attention to the symbols placed on the package.

Transport valve carefully to avoid damages by acts of violence or improvident loading and unloading.

6 Disassembly/Assembly



- Disassembly/Assembly only in depressurized systems!

6.1 Disassembly [see illustration 2]

- Remove plastic plug (1+2).
- Pull the hand lever (3) and disconnect the hex socket head cap screw (4), which is exposed then, by means of a hex wrench/Allen key of wrench size 4 (= width across flats).
- Disconnect second hex socket head cap screw (5) on the rotary knob with an Allen key of wrench size 4.
- Now the complete switch combination including handle and cross bushing can be detached upwards.
- Disconnect cheese-head screw (6) with Allen key of wrench size 4 on the lower rotary knob. Draw off the rotary knob of the flap.
- Disconnect hexagon nut (7), pull out the hexagon screw (8) and take out the centrepiece (10) with middle flange (9).

6.1.1 Disassembly of the leakage seat valve

- Disconnect setscrews (11) on the face side of the middle flanges with an Allen key wrench size 3.
- Pull out leakage seat valves (12).

6.1.2 Disassembly of flap seal

- Disconnect hex socket head cap screw (13) with an Allen key wrench size 4, pull out the screws and pull asunder the flanges (14+15). Take out flap with seal and floating bearing.
- After removing the two floating bearings (16), turn the flap (17+21) until a position of a 90°-angle to the seal (18) is reached. First of all the seal is edged over the axis of the flap below and then at the top. It is important to pay attention that the bead in the axis boring is not spoiled. The lower square of the leakage valve flap (17) has to be disconnected before exchange of the seal. For that purpose the gudgeoned fixation on the outline of the flap axis has to be removed.

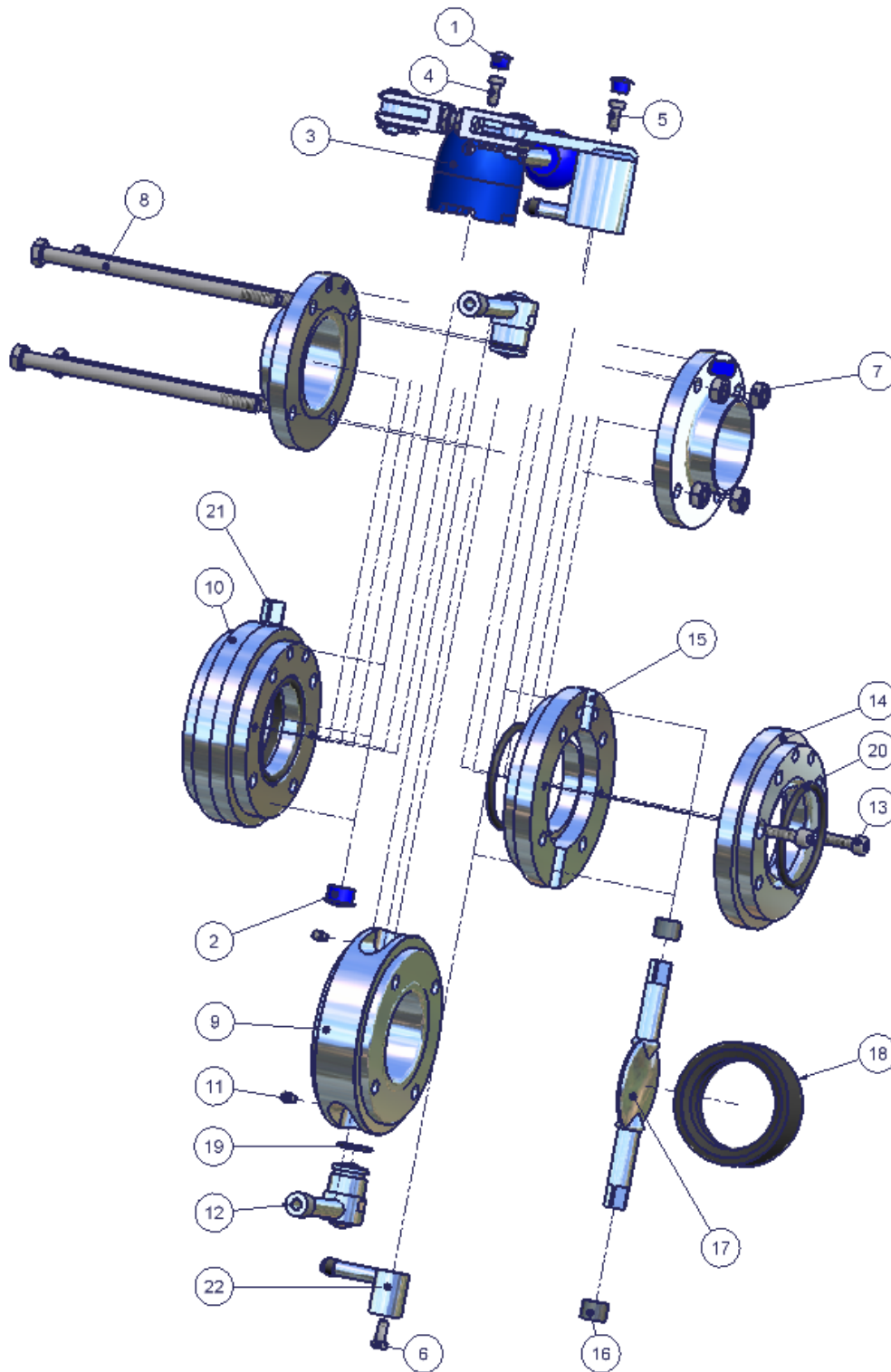


Illustration 2: Exploded Assembly Drawing LSV07 manual HB04

6.2 Assembly [see illustration 2]

Assembly is carried out in contrariwise succession.



- On assembly it is absolutely necessary to pay attention to the installation of the floating bearings (16)!!
- On assembly of flap (17+21) and seal (18), pay attention not to spoil the axis boring of the seal.
- The set screws (11) of the leakage seat valves have to be screwed tightly.
- Pay attention to the position of the leakage seat valve. Observe the turning direction of the handle.
- Damages on the seal are to be avoided.
- Counter flanges have to be aligning to each other and are to be adjusted accordant to definite position.
- Assemble the butterfly valve in a way assuring to avoid damages (for example by means of material-handling vehicles).
- Take care of the respective national subscriptions and assignations.
- Protect butterfly valves and connections from damage and destruction.
- The butterfly valve is to be implied in the potential equalization by means of appropriate assembly.

6.3 Installation / Starting up



- Leakage butterfly valve are to be installed only by qualified personnel, with adequate functional training, experience and knowledge regarding the tasks conferred to them.
- Pay attention that:
 - the leakage butterfly valve is installed zero-potential
 - no objects (screws, tools, etc.) are included in the tube system.
 - the thermal expansion of a medium “cooped in” and pressure hammers cannot affect the flap. Accordant non-return valves and relief valves should be provided.

6.4 Valve with welding sockets



- In the welding process, shape distortion can result which may affect the function of the leakage butterfly valve. For this reason, only weld butterfly valve flanges assembled without seal and flap. For this, pull tight all screws.

7 Maintenance / Attendance



- It is not allowed to make modifications on the leakage butterfly valve.



- On non-observance of these operating instructions or in case of constructional modifications of the leakage butterfly valves, the liability of M&S Armaturen GmbH in any kind is not applicable.
- A different utilization or a use beyond it is considered as not conventional or intended. M&S Armaturen GmbH is not liable for damages or losses resulting of this use.

8 Seals

Table 2: Seal qualities

Elastomer	Colour
EPDM	black
VMQ	red
NBR	blue
HNBR	black with coloured point
FKM	green



- Die Elastomere entsprechen den Richtlinien der US Food and Drug Administration (FDA), code of Federal regulations 21 CFR 177.2600, "Rubber articles intended for repeated use".
- Furthermore, the elastomeres EPDM and FKM are approved according USP Class VI-121°C.

9 Technical data

9.1 Torques and operating pressures allowed

Table 3: Torques and operating pressures

DN		Torque [Nm]	Max. operating pressure allowed [MPa]	Max. operating pressure allowed [bar]
25	1"	4-8	1	10
32		6-12	1	10
40	1,5"	8-16	1	10
50	2"	12-26	1	10
65	2,5"	18-34	1	10
80	3"	26-42	1	10
100	4"	36-48	1	10
125		50-76	1	10
150		58-88	1	10

9.2 Surface temperatures

The surface temperature is dependent on the temperature of the medium.

It is important to pay attention to the correct sealing material!

10 Disturbances, possible causes, remedies

Disturbance	Possible cause	Remedy
Leakages (against atmosphere)	Floating bearings were not assembled	Assembly of floating bearings
	Flap seal is damaged or worn out	Replace flap seal
	Flap is deformed by pressure hammers or thermal expansion of the medium	Replace flap
	Max. operating pressure was exceeded	Reduce operating pressure, optionally replace flap
	Wrong seal geometry (type, nominal diameter, brand)	Replace valve seal
	Shape distortion in the welding process on butterfly valve flanges	Replace butterfly valve flanges
	O-ring of the leakage seat valve defect	Replace O-ring
	Mixing ratio of detergent is overvalued	Replace valve seal and O-rings Adjust mixing ratio
Leakages in passageway	Position of square end of the flap distorted by overstress	Replace flap, avoid overstress
	Flap is deformed by pressure hammers or thermal expansion of the medium	Replace flap
	Shape distortion in the welding process on butterfly valve flanges	Replace butterfly valve flanges
	Flap seal is damaged or worn out	Replace flap seal
	Max. operating pressure was exceeded	Reduce operating pressure, optionally replace flap



	Mixing ratio of detergent is overvalued	Replace flap seal and O-rings Adjust mixing ratio
Valve disc cannot be switched/operated or can only be operated difficult	Soakings on the valve seal	Check adequacy of the sealing material Replace valve seal
Valve does not rest in the position adjusted	Hand lever is not arrested	Arrest hand lever in the borings of cross bush Alternative: assemble stepless handle
Cleaning of the leakage room is not sufficient	Pressure of detergent is too low Leakage seat valve is blocked Leakage seat valve is defect	Increase pressure Disassemble leakage seat valve and cleanse it Replace leakage seat valve