

General Description of the bfs-plug

The bfs plug is suitable for the following cell openings:

- Push-in plug S35
- Bayonet plug per British Standard
- High bayonet plug
- Four bayonet plug
- Threaded plug M27/M30/C35/M36

Effective water flow cross-section in the T-fitting

- Ø1.5mm (0.06") for gravity and forced flow systems (standard)
- Ø1.0mm (0.04") for safety valve plugs (EX-Version)

The bfs plug consists of the following components and materials:

- Hinged lid (Polypropylene, black)
- Plug housing with service hole (Polypropylene, black)
- Water supply T-fitting (Polypropylene, black)
- Valve case (Polycarbonate, transparent)
- Valve (Polycarbonate, yellow)
- Lever (Polycarbonate, red)
- Float spindle (Polycarbonate, white)
- O-ring for housing (EPDM)
- O-ring for T-piece (NBR)
- Float, 17 sizes (Polypropylene, transparent, butt-welded)

Description:

1. Push-in plug

All components of the S35 push-in plug fit in or on the plug housing. The components are designed to be installed by means of snap-fit. At the end of its useful life, the plug can be disassembled and the individual components can be recycled 100%.

2. Adapter plug

The adapter plug is formed by adding either a bayonet, or a threaded adapter to the basic housing. The patented design of the bfs adapter plug provides for independent rotation of the adapter and the housing (bfs patent).

3. Assembly and inspection

All components are checked before the semi-automatic assembly of the plugs. After assembly 100% of the plugs are tested to verify proper mechanical functioning and leak free operation.

4. Lever gear

As water enters the battery through the bfs plug, the rising water level lifts the float. The float spindle activates the valve and stops the water inflow. The accuracy and sensitivity of this operation is enhanced by bfs` patented lever gear, which increases the float buoyancy by a factor of 2.4.

When the valve is closed, a white-colored disk can even be seen through an opening in the hinged lid. This disk indicates that the cell is filled and the valve is closed.

5. Valve

The Polycarbonate valve fits inside a conical seat in the Polycarbonate valve casing. The diameter of the spherical valve block is 7.5 mm and the cone angle of the valve seat is 70°.

6. T-fitting

A single O-ring seals the T-connection through which the water is supplied, the plug housing, and the valve casing against each other.

7. Hydraulic seal

The water cylinder section in the valve casing contains a partition wall, which traps some water in the plug once the valve closes. This water acts as a hydraulic seal, which prevents exchange of gases between the individual cells and protects the battery from a potential chain reaction in case of a gas explosion in the cell.

Attention: After assembling the bfs-system start the first filling operation immediately to activate the water trap.

8. Filling

The water pressure during the filling operation can be as high as 53 psi (3.8 bar) and as low as

3 psi (0,2 bar). The optimum range is 4 – 26 psi (0,3 – 1,8 bar) and, in case of gravity filling, the water tank height must be adjusted accordingly and the tank needs to be vented. It should consist of colored material in order to avoid the formation of algae.

9. Service hole

A hole in the plug housing allows the insertion of a 3 mm probe into the electrolyte of the battery. This service hole becomes accessible by opening the lid of the plug.

10. Degassing

The plug housing is designed with a slit on the side to allow the escape of any gasses formed during the charging step. However, to prevent entrainment of electrolyte, the gases have to go through a tortuous path in the valve housing to condense and drain back most of the entrained moisture.

11. Double chamber

The interior of the plug is divided into two chambers, one for the water intake and one for the gas discharge. This design was first used in the bfs model II plug and resulted in a much cleaner environment for the operation of the lever gear.

See our technical datasheet for further details.

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