Maintenance and Control

batterie füllungs systeme gmbh
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bfs - Battery Filling System

1. General
   The bfs plug is a precision device which does not only ensure a precise electrolyte level in the battery cell but also provides the air-gas exchange.
   Likewise the bfs plug ensure with the internal water supply (siphon principle) that the gases of the individual cells are not concentrated and pose the risk of a chain reaction through the piping.

2. Cleanliness
   The bfs plug and its pertinent connecting parts and the piping must be kept clean. Clean the plugs and of all bfs-parts only with tap water. Cleaning agents might cause damage to the plastic materials used!!
   Dirty water topping-up devices will clog vent slots, inspection glasses will no longer show the correct level and foreign matter will enter the plug whose function will be impaired.

3. Water filter
   The filter cartridge (bfs-part No. 09FIL1) ensures cleanliness of the topping-up water. Even purified water contains foreign matter which is filtered out by the bfs-fine filter which is attached to the hose NW10 on the battery.

4. Dust cap
   On principle, a dust cap (bfs-part No. 09STAC or 09STAD) should be provided on the quick-action connection on the battery (connection male bfs-part No. 09KUV1). It is the only means to prevent foreign matter from entering the battery hose.

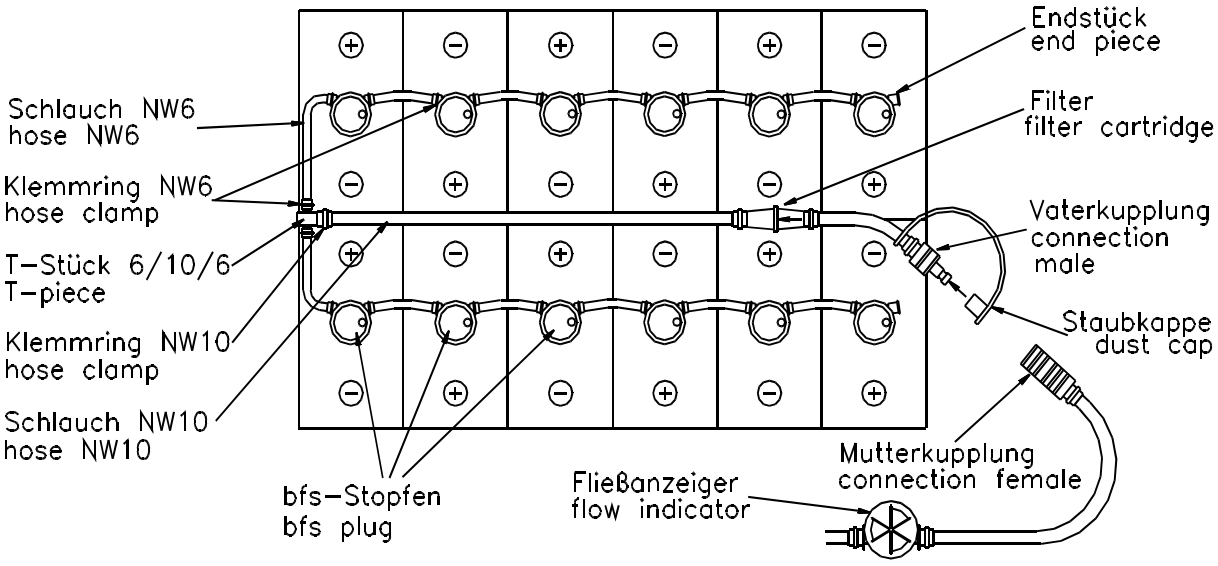
5. Filling
   It is recommended to water the batteries toward the end of the charging time.
   Never fill distilled water in a battery before it has been charged.
   The topping up of battery water should only be done if needed. If you water too often there is a danger of creeping overfill the battery cells.
   In general, the white indicators of the bfs plugs are in the lower part before the filling is started with. The flow indicator (bfs-part No. 09FLI1) indicates the start and end of the filling process. After the filling all white indicators must be in the upper part.
   At the end of the filling process, i.e. the flow indicator is still, the water supply must be disconnected immediately.

6. Ulectrolyte level indication
   The cover of the bfs plug has a round field for visual inspection. Here the current electrolyte level can be checked by means of the white indicator. When the indicator is in the lower position, the cell must be topped up with water.

7. Plug fit
   Check all topping-up plugs for firm fit in the cell cover from time to time. Incorrect fit impairs the function.

8. Ucid density
   Use the hydrometer (bfs-part No. 09HYDR) to measure the acid density of the electrolyte through the bfs plug when the lid is open.

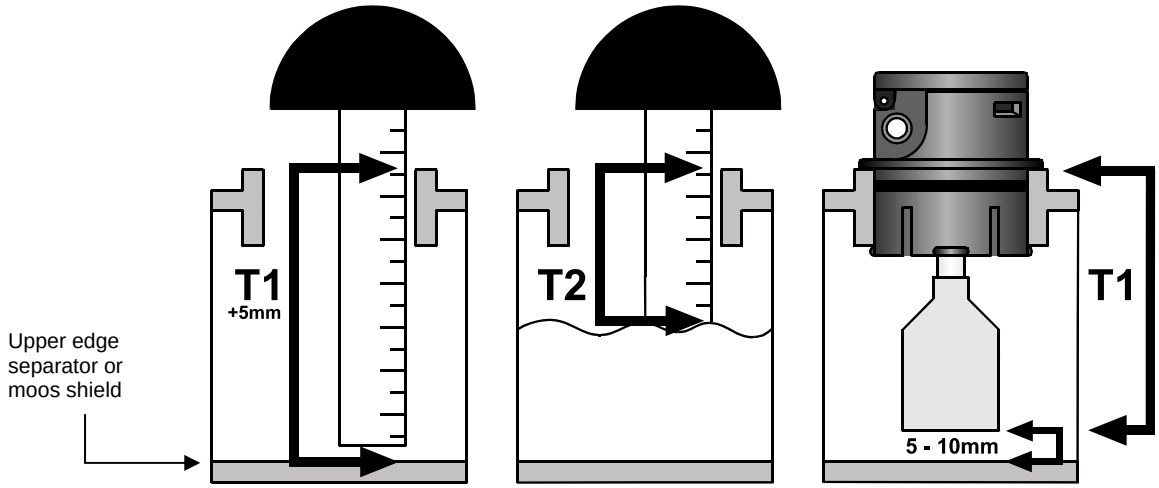
9. Ulumbing
   Hoses with two different sizes are used to feed the water to the cell.
   From the water tank to the battery through a PVC hose NW10 (bfs-part No. 08SCH1); and from cell to cell through a PVC hose NW6 (bfs-part No. 08SCH6). The hoses must be installed so that they do not have any sharp bends. All connections should be fixed with hose clamps.



10. Hose clamps
    Fix the entire piping system with hose clamps. The hose NW6 from cell to cell with hose clamp NW6 (bfs-part No. 08KLE6). The hose NW10 from the respective water source (tank or pump) to the battery with hose clamp NW10 (bfs-part No. 08KLE1). Make sure that the end piece (bfs-part No. 08END6) is mounted at the end of the piping on the battery - except in the case of endless-loop piping.
    A mounting tool (bfs-part No. 09WE16) can be used to make mounting of the hose clamps easier.

11. Floats

In order to be able to precisely control the electrolyte level in the cell, total 15 different floats are available.
The correct float is the condition for the proper function of the system. There must be a clearance of min. 5mm (0.2inch) between the separator upper edge and the float bottom.
Selection of the proper float is based on the measure T1, i.e. the distance between the edge of the cell cover and the moos shield or separator upper edge.



float No.	072612	072214	072220	072224	072229	072234	072239	072244	072249	072259	071432	071441
	T1 / T2 (mm)											
push-in plug III	42/31	41/29	47/34	51/39	56/42	61/46	66/50	71/53	76/57	86/68	58/40	68/40
quarter turn plug III	---	27/14	33/23	37/26	42/30	47/34	52/38	57/42	62/45	72/53	44/26	54/26
threaded plug III	---	30/17	36/26	40/29	45/33	50/37	55/41	60/45	65/48	75/56	47/29	57/29

float No.	071926	071923	071933	071942
	T1 / T2 (mm)			
push-in plug III	54/38	51/35	60/44	69/49
quarter turn plug III	39/24	37/19	46/30	55/35
threaded plug III	43/27	40/22	49/33	58/38

float no.	072220	072224	072229	072234	072239	072244	072249	071432	071441	071926	071933	071942
	T1 / T2 (mm)											
push-in plug IV	45/32	49/37	54/40	59/44	64/48	69/51	74/57	57/33	66/39	51/35	58/42	67/46
bayonet/clip plug IV	44/31	48/38	53/42	58/46	63/50	68/52	73/56	56/32	65/37	50/37	57/42	66/48
threaded plug IV	45/32	49/39	54/43	59/47	64/51	69/53	74/57	57/33	66/38	51/38	58/43	67/49

This table includes only an extract of the available floats.
The complete table you will find on our web site under
http://www.bfsgmbh.de/en/service/technicalinfo.html

12. Summary

After the battery has been electrically charged, the hose for the supply of the topping-up water (tank, pump) is connected.
Firmly fitting hose clamps, the filter cartridge, hoses installed without bends and a clean environment ensure the proper function of the system. The bfs filling system ensures the correct electrolyte level and, thus, the optimum service life of the batteries.