



Technical Datasheet

FRÖTEK Aqua Low Profile-System

Version: 20201217, as of December 17, 2020

I. Product description:

The ALP-plug is used to automatically adjust a specified-electrolyte level. The plug's basic structure has a defined area where charging gases are dissipated without interfering with the in-flowing water. A visual display used for monitoring the status of the valve is built into the lid of the ALP-plug. A diagnostic opening, which can be opened by a hinged lid, enables effortless measuring of temperature and acid density in the cell. The ALP is available with S35, R24 and as a snap-in for R24.

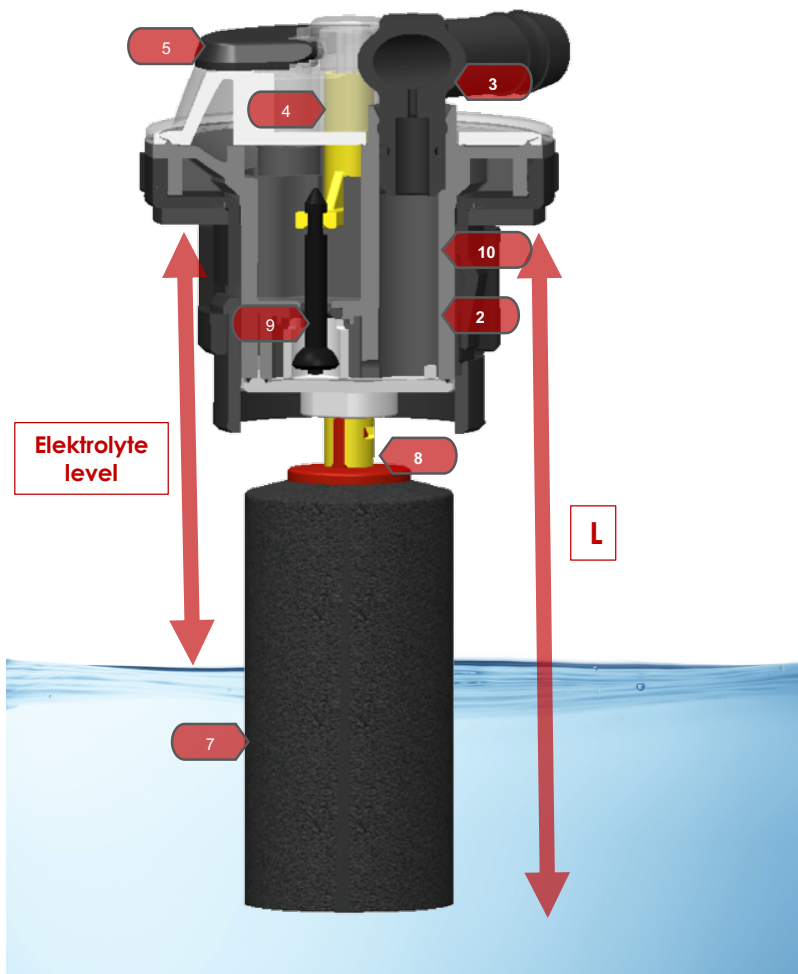
Product benefits

- Flat design 0,76" (18,5mm)
Reduces the risk of damage by battery cables.
- High buoyancy EPP floater
The material is a closed solid foam with unprecedented low density creating higher closing force for robust operation.
- Polycarbonate body
Higher resistance against impact and temperature than polypropylene.
- Inlying floater rod guide
*Higher protection against pollution and more function reliability.
Small contact surface between rod and guide to minimize risk of blocking.*
- Adjustable plug position
*Plug position is adjustable easily with a swivel vent insert.
In combination with the swivel t-piece, tube routing gets easier and faster.*
- Functional simplicity
*Only 7 functional parts and only 2 movable parts to minimize risk of blocking by sticky contaminants.
Pressurized parts are always welded together, not just clipped!
High resistance against vapor and pressurized water by welded polycarbonate parts.
High function reliability by a permanent flushing vent system.
FROTEK assures 100% production control of the valve tightness.*
- Color coding of floater
With floater color coding it is easy to identify the used floater length & filling level

General Remark: The data rendered above are based on today's knowledge and do not constitute an assurance of properties. Existing laws and regulations have to be observed by the recipient of the product in own responsibility. While every effort has been made to ensure technical accuracy, all information are subject to change without notice and do not represent a commitment on the part of FRÖTEK.



- 1 **DEGASSING** with internal aerosol separator
The FROETEK Low Profile valve uses separate chambers for water and gas flow. It also uses an internal aerosol separator to promote condensation inside of the degassing chamber and to avoid aerosol emission. This special feature leads to cleaner battery surface.
- 2 **INTERNAL WATER LOCK**
The extra internal water lock prevents gases from entering the tubing system and migrating between cells.
- 3 **SWIVEL T-PIECE** enables easy tube assembly
Also allows for easy movement and quicker, more flexible tube routing.
- 4 **POSITION INDICATOR** viewable from top and side
Easy sight lines allow quick reference of water levels.
- 5 **SEALED FLIP TOP** Lid covers and protects diagnosis opening
FROETEK offers the opportunity to customize your plug
- 6 **DIAGNOSIS OPENING** check specific gravity levels with ease
Provides quick check without demounting the plug
- 7 **HIGH BUOYANCY FOAMED FLOAT** without any possibility of leakage and sinking
 - Unprecedented buoyancy for robust closing
 - No possibility of leakage or sinking; cannot absorb water.
 - Cut-out area in float for optimal hydrometer access.
 - Acid, temperature and impact resistant
 - Length can be customized stepless



- 1 Degassing
- 2 Water chamber
- 3 Swivel T-piece
- 4 Position indicator
- 5 Sealed flip top
- 6 Diagnosis opening
- 7 Floater
- 8 Float rod
- 9 Valve
- 10 Water flow

Parameters of operation:

Temperature range of operation 0 to 65 [°C]

Water filling pressure 0.2 – 2.5 [bar]

Filling level from 31mm to 59mm

Color coding of filling level according to table 1

II. Assembly advice:

Before the assembly of the watering system it should be ensured that all parts (such as ALP-plug with floater, tubes, connectors, clamp rings, flow indicators, etc.) are found in a clean and dust free condition.

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III. Floater length:

Due to the variety of different cell type with varying plate-/separator.-heights and differing electrolyte levels the most important decision ensuring excellent product performance is the choice of the correct floater length. FRÖTEK offers the floater lengths shown in table 1. Other lengths are possible, please consult FRÖTEK. Even for smaller cell types there has to be sufficient space to ensure function and mobility of the floater. Furthermore, at no time the floater is allowed to touch the separators while the vent is open. A distance of 5mm from the bottom of the floater to the upper edge of the separator shall be maintained. Additionally, there must always be enough space between the floater and the positive and negative bridge. FRÖTEK offers a special depth gauge which can be used to help determine the correct floater length. The floater assembly must not be disassembled.

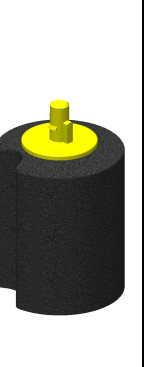
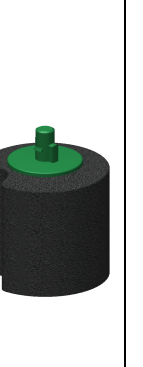
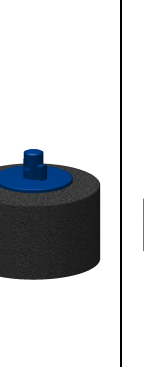
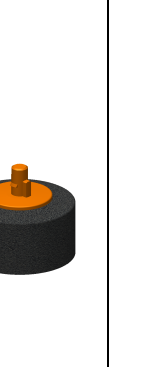
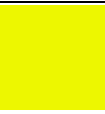
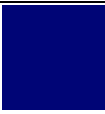
							
floaters height [mm]	48	43	38	32	29	20	16
filling level ± 3 [mm]	59	55	50	45	42	34	31
colour	Light blue	white	red	yellow	green	dark blue	orange
color example							

Table 1

Floater have a diameter of 19mm. Additionally there is a float with 16mm diameter for an electrolyte level of 39mm and L=49mm.



IV. The Aquamatik Hose System:

During installation excessive force (e.g. by hammer etc) must not be used to avoid damage of plug parts. Suggestion: The routing of hoses should follow the electrical connections (current flow) of the battery. ALP-plugs come with a T-connector piece. A hose with an inner diameter of 6mm can be fastened to either one of the connector pieces. A commonly used hose material is soft-PVC. FRÖTEK recommends the use of a clamp ring when the filling pressure is 0,6 bar or more. The hose is to be routed without excessive bending. For a quick and safe connection of the hose system (battery side) with the hose system (charging station side) the FRÖTEK fast-connect coupling system should be used (FRÖTEK-Part No.: Female Coupling 400800xx + Male Coupling 400800xx, available in different versions for hose diameters 6 and 10 mm with and without end-cap.

It has to ensure the hose has the correct inside diameter of 6mm and is pushed as far as possible over the T-piece connections. FRÖTEK recommends the use of the FRÖTEK hose (FRÖTEK Part No. xxxx81090006).

Repetitive removal and installation of the plug shall be avoided.

V. Filling:

The end of the charging process is the ideal time to refill the battery with de-ionized water. A battery shall never be filled before charging.

Refilling may never take place before charging. It is equally important to only refill the battery when necessary. As a result of too frequent refilling slow overfilling and spillage of water might occur.

The ALP has a yellow indicator for electrolyte level. If the indicator is in the lower section the battery shall be filled.

With the help of a flow indicator (FRÖTEK-Part No.. 400600XX) beginning and end of the charging process can be determined.

After completion of the filling procedure the water supply must be disconnected instantly to avoid over-filling as all watering plugs have to have a certain leakage rate to ensure proper function.

Gravity watering systems need to be installed at appropriate level above battery top level to ensure minimum pressure of 200mbar. Non-transparent tanks shall be used to prevent the formation of algae in the system.

VI. General Information:

The watering plugs and the other related parts need to be kept clean to avoid clogging of venting openings, intrusion of dirt parts and ensure visibility of level indicator. When cleaning the ALP only tap water is to be used. The water temperature must be watched, since temperatures around or below freezing can be damaging to the product.

FRÖTEK recommends the use of water filters (FRÖTEK-Part No. 40060006 + 40060010).

The required water pressure can be applied by using elevated tanks (gravity fed systems) with an outlet of at least 2m above the plugs.

All watering plugs need to be checked for tight fit in the cell opening to ensure proper function.

When closing the lid it has to be ensured that the lid is snapped-in correctly. If the lid is loose or the lid is not hold in a close position the plug has to be exchanged.