# FILLING SYSTEMS

# UNIVERSAL FILLING SYSTEMS

# **ABOUT PHILADELPHIA**

# Philadelphia Scientific industrial battery innovation

### THE UNIVERSAL BATTERY FILLING SYSTEM!

The AFS – Aqua Filling System is the best battery watering system on the market for small to medium-sized applications. It makes battery watering safe, easy and affordable.

It incorporates many unique features that make it the best in its class, as well a being the easiest battery filling system to install, using a minimal number of inventory items.

It fills an industrial forklift truck battery in one-tenth the time of hand watering, which means that these systems typically pay for themselves in under a year.

The system also improves safety as it prevents exposure to electrolytes while filling.

### **HOW THE AFS WORKS**

The AFS battery filling system is a float-based system. This means that the flow of water into the battery is controlled by a buoyant float mechanism, which rides on top of the electrolyte.

As the battery is being filled, water flows into each cell through individual AFS valves. As the electrolyte level rises, the float rises with it

and shuts off the valve when the correct electrolyte level is reached. While the force generated by this process is small, it is enough to shut off the valve in most conventional applications.

The shut-off mechanism has been designed to shut off precisely under a wide range of operating pressures, which means that it will work with almost all facility water sources.

Our adjustable float height setting design is the key to our exclusive universal product design. With the AFS battery filling system, you don't need to worry about having many float sizes in stock for your battery.

### **FEATURES & BENEFITS**

- One float fits all: multiple float valves are not required! Just a single, adjustable, valve for all industry standard fill heights.
- Fast installation: collars are not required, just push the tubing onto the barbs, it's fast, easy and secure.
- Watch the action: totally transparent, so the operator has the confidence of watching the cell being filled.
- · Lowest profile: at only 15 mm (0.6 inches) tall,





# UNIVERSAL BATTERY FILLING SYSTEM WITH MINIMAL PARTS

In addition to being easy to install, this universal battery filling system with minimal parts offers a host of additional benefits:

- Easily accessible hydrometer access ports
- · Maximum visibility of the level float
- A water trap
- · A low profile
- Compatible with common industry standards for fill heights and tube widths

The float kits include floats, tubing, input couplings and filter assemblies, cable ties and instructions for installation and operating.

Description	Technical information	REF
Float kit 12 V	Float valve kit for 6-cell DIN battery	164TA7942
Float kit 18 V	Float valve kit for 9-cell DIN battery	164TA7943
Float kit 24 V	Float valve kit for 12-cell DIN battery	164TA7944
Float kit 36 V	Float valve kit for 18-cell DIN battery	164TA7945
Float kit 40 V	Float valve kit for 20-cell DIN battery	164TA7946
Float kit 48 V	Float valve kit for 24-cell DIN battery	164TA7947
Float kit 72 V	Float valve kit for 36-cell DIN battery	164TA7948
Float kit 80 V	Float valve kit for 40-cell DIN battery	164TA7949
Float kit 96 V	Float valve kit for 48-cell DIN battery	164TA7950

### **BFS FILLING SYSTEM**



# **ABOUT BFS**

BFS cutting Edge Technology for battery watering systems

BFS is a robust, family-owned enterprise that has been developing, producing and distributing battery watering systems for lead-acid batteries for more than 30 years. Today BFS's products are the acme of quality and reliability. Around 75 staff are employed at the company's

production facility's in Germany and Malta. Every year more than 11 milion plugs are produced, sold and used around the globe... The company has been a world market leader in battery watering systems for many years, with the family's second generation now at the



# PLUGS

The plug is at the heart of the bfs system. Many different versions are available, and by offering our customers the greatest selection on the market, we make sure that a perfect system is available for any battery

M30

type, in any application. For most applications you can choose between bfs Plug III and Plug IV.

	Description	REF	Description	REF
	Manual push-in plug 35 mm	144TA1733	Automatic bayonet plug Bayonet 2 cam	137TA1843
	Manual threaded plug 27 mm	<u>137TA1839</u>	Automatic bayonet plug Seal (3.0 mm)	137TA1844
	Manual threaded plug 30 mm	<u>137TA1840</u>	Automatic bayonet plug Bayonet 4 cam	<u>137TA1845</u>
	Automatic push-in plug 35 mm	<u>144TA5917</u>	End stop	106TA8940
N. W.	Automatic threaded plug M27	<u>137TA1841</u>	Tool for easy mounting of plugs Assembling tool to ease and quicke the assembly of a BFS plug in adap versions such as bayonet adapters threaded adapters	ter 145TA2017
AL.	Automatic threaded plug	137TA1842		

# FILLING SYSTEMS

## **FILLING SYSTEMS**





We offer a large variety of floats to help control electrolyte levels in the cell with the greatest accuracy. Choosing the correct float is crucial in achieving the best level in battery cells. The large choice of floats allows

you to adjust electrolyte levels in all battery types and in all areas of application.

	Description	REF	Description	REF
	Float Size 14	137TA1846	Float Size 39	<u>137TA1850</u>
0	Float Size 20	137TA1847	Float Size 49	137TA1851
0	Float Size 24	137TA1848	Float Size 59	137TA1852
	Float Size 29	137TA1849	Tool	145TA2019
	Float Size 34	111TA3478		

# FLOAT MEASUREMENTS FOR TRACTION BATTERIES

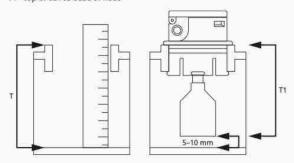


	Push-in plug		Bayonet/clip	plug	Threaded plu	ıg	REF
	bfs III	bfs IV	bfs III*	bfs IV	bfs III	bfs IV	
	A51000	A4N000	B51000 I51000	B4N000 I4N000	C/D/E/ F51000	C4N000	
Float size	T1	T1	T1	T1	T1	T1	
	mm	mm	mm	mm	mm	mm	
14	41	*	28	40	31	41	168TA7864
20	48	45	35	44	37	45	168TA7865
24	52	49	39	48	41	49	168TA7866
29	57	54	44	53	46	54	168TA7867
34	62	59	49	58	51	59	144TA5918
39	67	64	54	63	56	64	168TA7868
44	72	69	59	68	61	69	164TA2536
49	77	74	64	73	66	74	168TA7869
59	87	84	74	83	76	84	168TA7870
23	50	48	37	47	39	48	168TA7871
26	53	51	40	50	42	51	168TA7872
30	56	55	43	54	46	55	168TA7880
34	60	58	46	57	49	58	168TA7873
38	64	63	51	62	54	63	168TA7881
42	68	67	55	66	58	67	168TA7874
50	76	75	63	74	66	75	168TA7882
58	84	83	71	82	74	83	168TA7883
26	52	51	40	50	42	51	168TA7875
33	59	58	46	57	49	58	168TA7876
42	68	67	55	66	58	67	168TA7877
32	58	4	46	56	49	57	168TA7878
41	67	ž.	54	65	56	66	168TA7879

Using the float spindle extension (REF 168TA7884), add 13 mm/0.5"!

# CALCULATION OF FLOAT SIZE

T = top of cell to top of seperator T1= top of cell to base of float



# FILLING SYSTEMS

## **AQUA LOW PROFILE BATTERY WATERING SYSTEM**



FRÖTEK Aqua Low Profile Battery Watering System is a newly developed single-point watering system designed to save time, increase safety and fit most forklift battery brands on the market. The ultra-low profile design is engineered for easy installation. Battery watering time is significantly reduced with the single-point delivery system, and the fluid level indicator allows for quick and easy monitoring of the fluid level. Please note a pressure regulator is required to operate the watering system.

### Features:

- · Quick and easy one-point connection
- · Prevents over-filling of battery cells
- · Prevents missed watered battery cells
- · Only two movable parts minimizes blocking
- Ensures correct water level
- · Polycarbonate construction

# SINGLE-POINT WATERING PLUG S35 LOW PROFILE (MOSTLY USED FOR TRACTION APPLICATIONS)





Description	Colour: black	Floater height	Length	REF
		mm	mm	
Floater + T-piece	Standard plug S35	16	40	168TA6930
Floater + T-piece	Standard plug S35	20	44	168TA6931
Floater + T-piece	Standard plug S35	29	53	168TA6932
Floater + T-piece	Standard plug S35	32	56	168TA6933
Floater + T-piece	Standard plug S35	38	62	168TA6934
Floater + T-piece	Standard plug S35	43	67	168TA6935
Floater + T-piece	Standard plug S35	48	72	168TA6936

## SINGLE-POINT WATERING PLUG R24 LOW PROFILE (MOSTLY USED FOR BLOCK BATTERIES)



Description	Colour: black	Floater height	Length	REF
		mm	mm	
Floater + T-piece	Standard plug R24	16	40	168TA6937
Floater + T-piece	Standard plug R24	20	44	168TA7885
Floater + T-piece	Standard plug R24	29	53	168TA6938
Floater + T-piece	Standard plug R24	32	56	168TA6939
Floater + T-piece	Standard plug R24	38	62	168TA6940
Floater + T-piece	Standard plug R24	43	67	168TA6941
Floater + T-piece	Standard plug R24	48	72	168TA7886



Other than the watering plugs, which are at the heart of the system, bfs also offers perfectly matched accessories. The product line includes

all peripheral components as well as useful installation tools. (Please note: pictures of products are not to scale.)

	Description	REF	Description	REF
pr.	Hydrometer	138TA3957	Tube 10 mm 8 mm	168TA6926 168TA6927
1	Sliding tool	164TA2538	O-ring	<u>137TA1844</u>
1	Protection cap	168TA6923	Washer locker Diameter: 9 mm	137TA1860
ļ	Protection cap for male link RC		Diameter: 14 mm	137TA1859
~	Plug removal tool	164TA2537	End cap	168TA6928
-	Sliding tool 10/6 Tool to fix wash locker	168TA6924	Tool for easy mounting of plugs Assembling tool to ease and quicken the assembly of a BFS plug in adapter versions such as bayonet adapters or threaded adapters	

FILLING SYSTEMS				
	Brand	Description	Туре	REF
	♣ TotalSource	Female joint	7 mm 9 mm 11 mm 13 mm	137TA1853 137TA1854 106TA8953 137TA1855
	♣ TotalSource	Male joint	7 mm 9 mm 11 mm 13 mm	137TA1856 137TA1857 106TA8952 137TA1858
		Female joint	6 mm 10 mm	145TA2091 145TA2092
	dF≘	Male joint	6 mm 10 mm	145TA2093 145TA2094

# FILLING SYSTEMS

ACCESSORIES					
	Brand	Description		Туре	REF
	♣ TotalSource	Flow indicator r	nale with filter	1 x NW6 1 x NW10	142TA3205 166TA5547
To the same of the	★ TotalSource	Flow indicator r	nale with filter	2 x NW6 2 x NW10	142TA3207 142TA3206
A TON	★ TotalSource	Female connect	tor filter	1 x NW6 1 x NW10	142TA3208 142TA3209
	★ TotalSource	Water filter with	n flow indicator	NW6 NW10	142TA3218 142TA3217
	FROTEK	Female couplin	g with valve	8 mm 10 mm 12 mm	164TA2160 164TA2161 164TA2162
0.300	FRÖTEK	Male coupling v	vith valve	8 mm 10 mm 12 mm	164TA2163 164TA2164 164TA2165
Female coupling for water	Brand	Connection	Colour	Application	REF
remaie coupling for water	FRÖTEK	KV10 KV6	Grey	Water standard	168TA7887 168TA7888
Male coupling for water	FROTEK	SV10 SV6	Grey	Water standard	168TA7889 168TA7890

ACCESSORIES				
1	Brand	Description	Туре	REF
	♣ TotalSource	Joint with filter	1 x M16 x 1.5	142TA3211
	★ TotalSource	Flow indicator	Connection: 10 mm	106TA8956
IIII	□F=	Flow indicator	Connection: 10 mm	145TA2096
		Filter	Connection: 10 mm	145TA2095
	FRÖTEK	Water filter	Connection: 10 mm	106TA8951
	bF≡	Hose clamp	9 mm 14 mm	137TA1860 137TA1859
	★ TotalSource	Plastic hose	6 x 9 mm (per metre) 10 x 14 mm (per metre) 12 x 16 mm (per metre)	168TA7126 168TA6955 106TA8943

### PARTS FOR WATER CIRCULATION



Our products include everything needed to set up an automatic watering system with hoses etc.
With regard to their quality and dimension tolerance, our connectors are a perfect match for bfs hoses and the bfs watering system as a whole.

	Description	Connection	REF
all a	L-connection	6-6 10-6 6-10 10-10	137TA1835 106TA8944 137TA1834 106TA8945
all a	T-connection	6-6-6 6-10-6 10-06-10 10-10-10	13/TA1836 144TA5913 144TA5914 106TA8948
	X-connection	6-6-6-6 6-10-6-10 10-10-10-10	137TA1837 106TA8949 106TA8950
000	Reduction	10-6	<u>142TA7718</u>

# FILTEREX FOR CENTRAL DEGASSING



## Characteristics:

The use of the filterEX on batteries prevents:

- · A flash-back of hydrogen fire
- Followed by a chain reaction between the battery cells

### Requirements:

Normally, the filterEX is used in combination with the central degassing BFS plug (A51210), where all cells are inter-connected through the degassing hoses in addition to the normal water hoses.

FilterEX will protect the battery under any of the following circumstances:

 An ignition from an external source – flame propagation can be avoided by filterEX – mounted at the end of the degassing hose  An ignition source inside one of the battery cells – a propagation of the flame can be prevented by filterEX mounted after each plug

## Handling:

- The piping should be installed in such way that there are not more than 10 BFS plugs connected to one filterEX
- The filterEX should be replaced after approximately 300 cycles, respectively when the white insert becomes discoloured. Replacement frequency depends on the gas discharge volume per battery cells.

REF 168TA6956

## SNAPCAP" VENTS



REF 168TA1648



REF 168TA1649

# HANDLE



REF 115TA6846

# One-piece design

Now available on Crown 6 and 12 V deep-cycle batteries

### The new convenience

Crown battery will begin producing our range of high capacity 6 and 12 V deep-cycle batteries with the company's proprietary one-piece SnapCap vent component.

# The SnapCap vent component delivers a number of major benefits to battery owners and users:

A highly convenient one-piece locking vent component that makes battery inspection easier and more efficient.

The SnapCap utilizes a lock-in base that secures the vent to the cell opening by manual compression. Installation is fast and easy and does not require tightening of the vent after installation.

The SnapCap design includes a low-profile and multiple safety features that makes it one of the safest vents on the market.

Flooded lead deep-cycle batteries with "SnapCap" vents

Vent component design change

Effective in June 2016 for the following deep-cycle group sizes and battery models:

BCI Group 901: CR-250 and CR-275

BCI Group 903: CR-370, CR-390 and CR-430 BCI Group 902: CR-305, CR-330 and CR-350 BCI Group 921: CR-185, CR-195 and CR-215

# **CONNECTIONS & CABLES**



Battery connection Ø 25 mm

Length	REF
mm	
75	168TA1650
95	168TA1651
190	168TA1652
280	168TA1653
300	168TA1654
350	168TA1655
400	168TA1656

<sup>\*</sup> Other dimensions are available on demand.

# Charles and the same

## Terminal cable Ø 25 mm

Length	REF	
mm		
75	168TA1657	
95	168TA1658	
190	168TA1659	
280	168TA1660	
300	168TA1661	

# **QUICK RELEASE**





REF 115TA6845 - Quick release for 6 V batteries with 3 plugs REF 168TA1077 - Quick release for 8 V batteries with 4 plugs

Diameter	Colour	REF
mm		
32	Red	131TA7018
32	Black	131TA7019
30	Red	131TA7020
30	Black	131TA7021
26	Red	131TA7022
26	Black	131TA7023
24	Red	131TA7024
24	Black	131TA7025
20	Red	131TA7026
20	Black	131TA7027

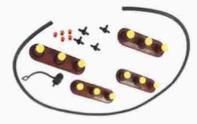
# FILLING SYSTEMS

## **HYDROLINK" WATERING SYSTEM**



Trojan knows the importance of battery maintenance and the impact it has on a battery's life. Battery maintenance, particularly, battery watering, can be time-consuming, and messy.

With Trojan Battery's innovative HydroLink." Watering System, you can experience faster, easier and safer battery watering. With HydroLink, a complete set of batteries can be watered in less than 30 seconds!



Features	Benefits	
Reduces acid spills	Lower cost of ownership by reducing overfilling which increases batter life and maintains a longer battery run time	
Independent water level indicator	Non mechanical and easy-to-read. Takes the guess work out of when to add water to the battery. Saves maintenance time	
Internal and external flame arrestors	Safest watering system in the industry – helps prevent any spark or flame from entering the battery	
Cost-effective	Saves valuable time and money	
Guaranteed to work with your Trojan batteries*	Four-year, limited warranty	
Compatibility	The HydroLink Watering System is compatible with 6-volt, 8-volt and 12-volt Trojan batteries. Clampless tubing allows for customizable configuration in any application	

<sup>\*</sup> HydroLink is not compatible with all batteries. See Below for the details.

REF 168TA7170 - HydroLink kit 6 VX6
REF 168TA7171 - HydroLink 6 V plug
REF 168TA7172 - HydroLink kit 6 VX4
REF 168TA7173 - HydroLink kit 8 VX3
REF 168TA7174 - Spare vent cap

### **DISTILLED WATER STATION**



# HYDROPURE

The HydroPure is a low-cost deioniser system that allows you to make pure water straight from the tap! This deloniser reduces the high price of buying bottled water

and it's more convenient as well. Each disposable cartridge purifies about 2400 I of water and the purity light will tell you exactly when the cartridge is used up.

# Features:

Professional quality deioniser: not just a filter, which only removes particles, but a real ion-exchange medium that electrostatically removes dissolved impurities. Purity is comparable to distilled water and ideal for batteries.

Large capacity: the cartridge is rated for 2400 l of pure water.

Purity light: this "magic eye" monitors the conductivity of the output water continuously and signals when it is time to change the cartridge.

Pressurized system, easy installation, easy cartridge replacement.

### Flow rates:

- · Maximum intermittent flow: 8 l/min
- · Maximum continuous flow: 2 l/min

### Indication:

· Purity light indication water OK: steady green flash

Philadelphia Scientific

- · Purity light indication water BAD: double red flash
- · Purity light OK max threshold: 50 ppm

HydroPure 300: complete deioniser system supplied with DC battery-powered purity light and 1 replaceable cartridge

### 1. Output:

- · Maximum output (input purity 50 ppm): 5760 l
- Typical output (input purity 120 ppm): 2400 l
- · Poor water output (input purity 250 ppm); 1150 l
- · Maximum input pressure:
- · Cartridge resin volume: 4.5 l

# REF 127TA3874

### 2. Output:

- Maximum output (input purity 50 ppm): 11 520 l
- Typical output (input purity 4800 ppm): 2400 l
   Poor water output (input
- purity 2300 ppm); 1150 l
- · Maximum input pressure:
- Cartridge resin volume: 4.5 l

REF 140TA8949



Replacement deioniser cartridge for 300/400

REF 127TA3875



Connector

REF 164TA2592



Water filling pistol

REF 139TA3244

<sup>\*</sup>Only under typical circumstances with an input purity of 120 ppm.

# FILLING SYSTEMS

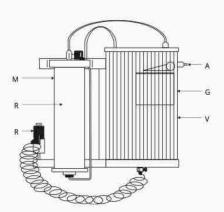
## **DEMINERALISED WATER UNIT**



- REF 105TA4903 Can produce 150 l of demineralized water REF 105TA4902 Replacement cartridge
   REF 111TA3846 Coupling

# WATER DEMINERALISER COMPLETE WITH RESERVOIR





- The long experience acquired in the area of the forklift trucks led to
- The long experience acquired in the area of the forkiff trucks led the production of Vinky
   Vinky is an efficient and easy-to-use device that will prove to be of use to personnel responsible for refilling water within traction batteries
   The Vinky can produce 500 I of demineralized water, and is delivered with gun (with auto-level detector) and 15 I reservoir

REF 103TA1549 - Complete system

Code	Description	REF
P	Gun	103TA1551
М	Demineraliser (= resin + tube)	103TA1552
R	Synthetic demineralising resin (no tube)	103TA1553
G	Sender unit to stop water from overflowing	103TA1554
٧	Tank for demineralized water Capacity: 15 I Dimensions: 206 x 166 x 461 mm	103TA1555

## **WATER-FILLING PISTOLS**





- Integrated flow indicator
   Pressure regulator incorporated in nozzle
- 45° bend nozzle
- Secure level control
- 6.4 l per minute
   With flow diffuser

# REF 139TA3244

- For watering transparent jar-type stationary batteries
   Gun operates outside the cell
- · Does not have automatic shut-off

# REF 124TA1729

- Length: 440 mmWater nozzle25 cm filling pipe

# REF 138TA3952

- Robust water nozzle with ergonomic rubber handle 25 cm
   Not acid-resistant (for batteries with automatic filling system)

# REF 138TA3953

- 9 V-battery included
- Visual and acoustic water level signal indicators

# REF 138TA3954

# FILLING SYSTEMS

## **FOOT PUMP**



Foot pump suitable for barrels up to 120 l

REF 116TA5779

# PORTABLE SUCTION PUMP FOR WATER



For removing excess water from the battery container.

• Acid-resistant plastic casing

• Dimensions: 220 x 170 x 140 mm

• 12 V connector

- Capacity: 2.7 l/min
   Suitable for 37% acid
- · On/off switch with LED indicator
- · NW-06 connection for input and output

REF 116TA5781

# **FILLING SYSTEM TOOLS**





REF 106TA8986







# **Funnel set**

- Complete set
- Diameters: 50, 75, 100, 120, 150, 160 mm
  Resistant to oil, acid and fuel

REF 139TA1913

Automatic battery filler

Stops automatically when the desired level is reached

REF 106TA8983 - 11 REF 131TA6367 - 21

## **FILLING SYSTEM TOOLS**



## Gravity tank 20 I with tap

REF 166TA5958



### Kit water tank 20 l

- 3 m tube
- Filter
- · Flow indicator and link

REF 106TA8937



Makes it possible to fill with automatic filling plugs or with water gun.

REF 168TA6942

### Content:

- 3 m tube
- REF 168TA6943 Flow-indicator

- REF 168TA6944 Fast connector REF 168TA6945 Fast connector REF 168TA6945 Fast connector REF 138TA3953 Watergun L



Gravity tank 60 l with tap Dimensions (X x Y x H): 460 x 350 x 500 mm

REF 116TA6228



# Kit water tank 60 l

- 3 m tube Filter
- Flow indicator and link

REF 168TA7892

Replacement part:

REF 168TA6946 - Run out tap



# Tap for water tank 60 l

REF 168TA6946

# **BATTERY ACID**





# FILL IN THE FORM



Battery acid 37.5% (32% BE)

REF 124TA2887 - 11 REF 106TA8674 - 201

# FILLING SYSTEMS

## **ACID FILLING PISTOL**

## MANUAL SUCTION PUMP OIL, FLUIDS AND ACID



REF 106TA8988



REF 168TA7134 - 2.51 REF 145TA2100 - 61

# PARTS FOR WATER CIRCULATION



## Water tank

REF 168TA6950 - 301

REF 168TA6951 - 30 | with optional kit REF 168TA6950 - Water tank

REF 106TA8956 -Flow indicator REF 107TA7887 2 x clamp with screw

11/17 ABA

REF 144TA5916 - Female joint

diameter: 11 mm REF 106TA8942 - Hose

# Replacement part:

REF 168TA7894 - Run out tap



Water tank round

REF 168TA6952 - 301





ACCESSORIES:

REF 166TA5550 - Water tank 1000 I with tap - filled with demineralized water

REF 168TA6953 - Water tank 1000 I with tap – empty

REF 168TA6954 - Connector diameter 10 mm to fix the accessories



PVC filling tube dia 10 mm

REF 168TA6955



Flow indicator

REF 168TA6943



Link female (to fill the batteries with automatic filling system)

REF 168TA6944



Filling gun - not acid proof (to fill the batteries without automatic filling system)

REF 138TA3953

# **DEMINERALIZED WATER**







REF <u>139TA3478</u> - 51 REF <u>166TA5548</u> - 251 REF <u>166TA5550</u> - 10001

# **BATTERY FILLER UNIT**



- Mobile water filling system with 60 I barrel + gun
   Battery 12 V, 6.5 Ah

REF 106TA8976