

# Cell topping-up equipment for Ni-Cd batteries (DC)

This equipment has been designed to aid the topping-up of water for large sizes or numbers of cells, especially where the electrolyte levels cannot easily be seen.

The complete topping-up watering equipment comprises two basic units –

- the filling pistol, which has a flow rate of 6.4 liters/min, shuts off at the right level when the correct spacer tube is used.
- watering cart equipment, connected by a flexible hose.

## Safety precautions

- Remove all rings, watches, and other items with metal parts prior to working with battery.
- Wear protective gear, rubber gloves, long sleeves, closed goggles or shield.
- Never allow an exposed flame or spark near the battery.
- Never smoke while performing any operation on the battery.
- Discharge any possible static electricity from clothing and/or tools by touching an earth-connected part "ground" prior to working with the battery.
- Use insulated tools.
- Electrolyte is harmful to skin and eyes. In the event of contact with skin and eyes, wash immediately with plenty of water. If eyes are affected, flush with water, and obtain immediate medical attention.



## Parts list equipment - Celltopper Plus (DC)

Item	Part Number	
	Pocket plate cells	Sintered/PBE cells
Complete topping-up equipment with universal charger 120 V / 230 V (with filling pistol, spacer tube kit, charger + plugs)	08-00195-02	220325
Filling pistol (with spacer tube kit)	01-02002-01	220323
Spacer tube kit (with spacer tubes marked "A" to "I")	01-02007-01	220974
Battery charger (120 / 230 V) + plugs (2-Pin Euro plug, 3-Pin UK plug, 2-Pin US plug)	01-02011-01	220975



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# Operation procedure

## Watering cart equipment

- The battery for the watering cart is shipped disconnected. Before using the cart, connect the battery according to supplied instruction.
- Remove the cap and fill tank with ONLY distilled or de-ionized water (per IEC 60993). Replace the cap when full.
- Connect the output hose of the watering cart to the bottom of the filling pistol's handle. A quick connector is preassembled.
- Turn the power switch to the ON position. The switch is located on the back of the cart. The pump will energize for a few seconds and then stop.
- Refer to "Filling pistol operation" (page 3).
- Once all topping-up is complete, turn the power switch to the OFF position.
- Charge the cart battery as needed. The battery needs 13 hours to fully charge. The battery shall be kept at a good level of charge.



## Note:

- The watering cart cannot be operated while the charger is connected to the battery.
- The expected run time of the watering cart, with a fully charged battery, is 2 hours continuous. Longer run times are likely with intermittent use of the system.

Watering cart equipment	
Container capacity	38 L (made of polypropylene)
Charger	120 V / 230 V with exchangeable AC plug models
Hose	~3 m in length
Battery	12 V / 7.2 Ah
Dimensions (mm)	150 x 64 x 94 (L x W x H)
Dimensions (mm)	~381 x 343 x 889 (L x W x H)
Packaging dimensions (mm)	~431 x 431 x 940 (L x W x H)
Weight (kg)	~13.6 (empty) ~54.2 (full)

# Operation procedure

## Filling pistol

- Select the appropriate spacer tube for cell type that is to be topped-up. Refer to the spacer tube list in the tables (see page 4) for correct spacer tube identification. The spacer tubes are individually marked with an identity letter.
- Attach spacer tube to the front end of the probe by orienting the spacer tube so that the stepped inside diameter is placed on the probe first.
- Push the spacer tube completely against the probe top so that there is NO visible space between the spacer tube and the probe top (refer to the pictures below).
- Open vent cap of cell and insert probe into cell until spacer tube sits on open vent hole.
- Press and hold handle until the pistol automatically stops dispensing water and release handle.
- Remove the probe from the cell.
- Repeat topping-up other cells.

### Note:

- There will be some water that drips out of the probe after the handle is released. Let this drain into the cell or to another desirable location.

### Caution:

- Use correct spacer tube to prevent overfilling or underfilling.
- Only use distilled or de-ionized water. NEVER use tap water.
- Topping-up equipment should be dedicated to Ni-Cd batteries.



### Filling pistol

Total filling pistol length (mm)	~680
Packaging dimensions (mm)	~813 x 203 x 76 (L x W x H)
Kit of 9 spacer tubes supplied	(marked "A" to "I")

## Correct installation for specified spacer tubes (see page 4)



Spacer tubes  
"A" to "F", "H" and "I"



Spacer tube  
"G"

# Spacer tubes

## For pocket plate cells

Battery type	Capacity range (Ah)	Spacer tube to be used
SBH	8.3 - 16, 49	A
SBH	19 - 39	B
SBH	51 - 920	B
SBL	7.5 - 30, 45, 59	A
SBL	37, 48	B
SBL	70 - 1540	B
SBL E	7.5 - 30, 47, 62	A
SBL E	35	B
SBL E	75 - 1660	B
SBM	11 - 30	A
SBM	43 - 1390	B
SCH	11 - 50	B
SCH	58 - 137	C
SCH	147 - 265	B
SCH S - steel	67 - 128	A
SCH S - steel	147 - 320	B
SCL	11 - 69	B
SCL	76 - 128	C
SCL	157 - 411	B
SCL P	10 - 70	H
SCM	11 - 59	B
SCM	65 - 118	C
SCM	145 - 341	B
SCM S - steel	32 - 118	A
SCM S - steel	145 - 435	B
SNH	9 - 34	A
SNH	40 - 210	B
SNL	10 - 59	A
SNL	70 - 355	B
SNM	9 - 55	A
SNM	70 - 335	B
SPL	80 - 420	B
STL⊕	38 - 460	B
SUN⊕	45 - 1110	B
UP1L	15 - 75, 110	A
UP1L	95	B
UP1L	140 - 1700	B
UP1M	8 - 65	A
UP1M	75	B
UP1M	100 - 1330	B

## For sintered/PBE cells

Battery type	Capacity range (Ah)	Spacer tube to be used
SM 100 LFR/LFRpp	95	C
SM 100 P/FR/FRpp	95	F
SM 110 S	110	B
SM 155 P/FR/FRpp	155	A
SMRX F3	160, 180, 200, 230, 260, 290	B
SMRX F3	320, 360	A
SPH	11	A
SPH B	16 - 47	A
SPH/F	16 - 52	D
SPH/F	60 - 80	B
SPH/F	90 - 190	A
SPH/F	220 - 320	C
SRA	75, 90, 110, 125, 140	B
SRA	160, 190, 220, 260, 280, 310, 340, 375	C
SRA HT	70, 85, 105, 115, 130	B
SRA HT	150, 175, 200, 245, 265, 290, 315, 350	C
SRA LT	75, 90, 110, 125, 140	B
SRA LT	160, 190, 220, 260, 280, 310, 340, 375	F
SRM - steel	46 - 80	B
SRM - steel	105 - 440	G
SRM⊕	40 - 135	B
SRM⊕	160 - 360	E
SRM 320 LFR/LFRpp	320	A
SRM 340 CP/CFR/CFRpp	340	E
SRM F3	80,100,140,160,180	C
SRM F3	120,140L	D
SRM F3	250C	E
SRM P/FR/FRpp	25 - 66	D
SRM P/FR/FRpp	80 - 105	D
SRM P/FR/FRpp	125 - 270	F
SRX / SRX E - steel	72 - 370	C
SRX 44 E - steel	44	B
SRX C	50	C
SRX F3	220	A
SRX P-LC	250	B
SRX P/FR/FRpp	22 - 80	D
SRX P/FR/FRpp	90 - 220	C
SRX P/FR/FRpp	175L	A
SRX stainless	90 - 250	B
STH	21 - 80	D
STH	90 - 190	E
STH B	11 - 47	A



**Saft**

Transportation, Telecom & Grid  
 26 quai Charles Pasqua  
 92300 Levallois-Perret – France  
 Tel. : +33 1 58 63 16 00  
 Fax : +33 1 58 63 16 18  
[www.saftbatteries.com](http://www.saftbatteries.com)

