

ESPEX Revive

For Greener Renewable Energy Storage

OPzS Cells
for
Renewable Energy



+ **ESPEX** **-**
Batteries Limited

Unit 13, Llandough Trading Estate
Cardiff. CF11 8RR, UK.
Tel: +44 2920 705453
Fax: +44 2920 708165
E-mail: amit@espexbatteries.co.uk
www.espexbatteries.co.uk

A subsidiary company of EXIDE INDUSTRIES Ltd., Calcutta India.

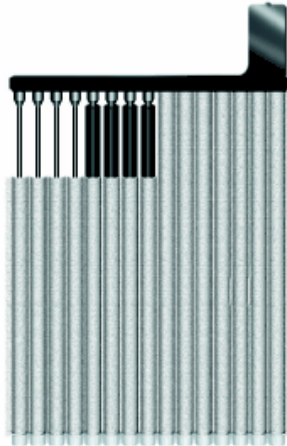
For Greener Renewable Energy Storage

RANGE SUMMARY

Cell Type	Rated Voltage (V)	Terminal Pairs	AH Capacity to 1.85V at 25°C at the rate of				AH Capacity to 1.8V at 20°C	Overall Cell Dimensions			Typical Weight Kg
			50Hr	70Hr	100Hr	120Hr		Length mm	Width mm	Height mm	
4OPzS200	2	1	270	279	288	293	213	103	206	425	17.4
5OPzS250	2	1	330	342	353	359	264	124	206	425	20.9
6OPzS300	2	1	396	410	423	430	316	145	206	425	24.5
5OPzS350	2	1	475	492	508	516	380	124	206	542	27.2
6OPzS420	2	1	574	594	613	623	460	145	206	542	32.5
7OPzS490	2	1	669	693	715	727	540	166	206	542	37.0
6OPzS600	2	1	824	853	881	895	650	145	206	716	46.5
7OPzS700	2	2	1008	1044	1077	1095	810	210	191	716	59.0
8OPzS800	2	2	1099	1137	1174	1193	876	210	191	716	63.0
9OPzS900	2	2	1281	1326	1369	1391	1030	210	233	716	73.0
10OPzS1000	2	2	1379	1427	1473	1497	1100	210	233	716	77.0
11OPzS1100	2	2	1549	1603	1654	1682	1250	210	275	716	87.0
12OPzS1200	2	2	1653	1711	1767	1795	1340	210	275	716	91.0
11OPzS1375	2	2	1921	1988	2052	2085	1580	210	275	865	111.0
12OPzS1500	2	2	2114	2188	2259	2296	1670	210	275	865	120.0
13OPzS1625	2	3	2390	2473	2553	2595	1809	214	399	842	143.0
14OPzS1750	2	3	2508	2595	2680	2724	1948	214	399	842	150.0
15OPzS1875	2	3	2647	2739	2828	2874	2088	214	399	842	155.0
16OPzS2000	2	3	2758	2854	2946	2994	2227	214	399	842	160.0
18OPzS 2250	2	4	2994	3094	3200	3252	2505	212	487	842	188.0
20OPzS2500	2	4	3150	3260	3366	3420	2783	212	487	842	203.0
22OPzS2750	2	4	3450	3569	3626	3746	3062	212	576	842	222.0
24OPzS3000	2	4	3809	3942	4070	4135	3340	212	576	842	230.0

ESPEX Revive

For Greener Renewable Energy Storage



The ESPEX Revive TUBULAR Positive Plate

THE SUPPORT STRUCTURE IS IN THE FORM OF CAST ROD ELECTRODES CALLED “*SPINES*” JOINED AT THE TOP TO A BUS BAR

INDIVIDUAL SPINES ENCLOSED IN A MICROPOROUS PLURITUBULAR GAUNTLET

ANNULAR SPACE BETWEEN SPINE AND GAUNTLET FILLED WITH ACTIVE MATERIAL.

BOTTOM OF THE GAUNTLET SEALED WITH A PLASTIC BOTTOM BAR

The ESPEX Revive TUBULAR Positive Plate

FEATURES

SHEDDING OF ACTIVE MATERIAL PRACTICALLY ELIMINATED
CORROSION OF DEEPLY EMBEDDED SPINES MINIMISED
ACTIVE MATERIAL CAN BE LOOSELY PACKED TO ENHANCE UTILISATION

IDEAL FOR REPEATED CHARGE & *DEEP DISCHARGE* CYCLIC APPLICATION

EXCELLENT RESISTANCE TO OVERCHARGE ABUSE

FULL RECOVERY FROM DEEP DISCHARGE

PARTIAL STATE-OF-CHARGE OPERATION POSSIBLE

BEST SUITED FOR EXTREME TEMPERATURES – BOTH HIGH AND LOW

EXTENDED SERVICE LIFE

ADVANTAGES

The ESPEX Revive TUBULAR Positive Plate

The SPINE ALLOY

FEATURES

A LEAD – ANTIMONY ALLOY USING A LOW ANTIMONY CONTENT (<2.5%) BLENDED IN-HOUSE FROM ELECTROLYTICALLY REFINED 99.99% PURE PRIMARY LEAD PROPERLY DESIGNED IMPURITIES FOR GRAIN REFINEMENT

ADVANTAGES

**HIGH CORROSION RESISTANCE – LONG SERVICE LIFE
LOW WATER LOSS DUE TO LOW ANTIMONY POISONING OF NEGATIVE PLATE – HENCE LOW TOPPING UP FREQUENCY**

The ESPEX Revive TUBULAR Positive Plate

The SPINE ALLOY

**CRACK DEVELOPMENT DURING
SOLIDIFICATION.**

***“LACK OF GRAIN REFINEMENT” --
PULLING LARGER GRAINS APART
DURING SOLIDIFICATION OF LOW
ANTIMONY ALLOY.***

This is Not Desirable



The ESPEX Revive TUBULAR Positive Plate

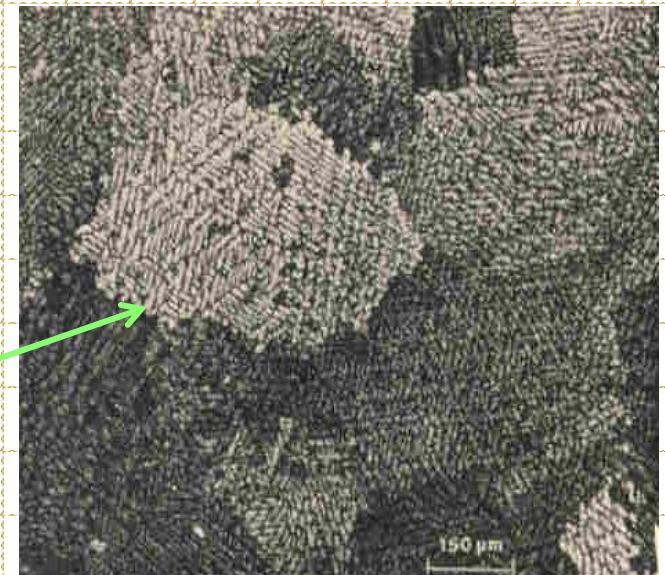
The SPINE ALLOY

PRECISE QUANTITY OF COPPER & SELENIUM
ADDED TO ALLOY AS GRAIN REFINER.
GRAIN SIZE IS REDUCED AND HENCE GRAIN
STRUCTURE IS REFINED.

ADVANTAGE

FINER GRAIN STRUCTURE PROVIDES FOR
HIGHER CORROSION RESISTANCE
THROUGH ENHANCED GRAIN BOUNDARY

IF NO ADDITIVES ...GRAIN STRUCTURE
IS COARSE -DURING SOLIDIFICATION



The **ESPEX** Revive **TUBULAR Positive** Plate

The SPINE ALLOY

**A HIGH PRESSURE CASTING METHOD WITH
OPERATING PRESSURE GREATER THAN 100 BARS
BY 'HADI MACHINES' FROM AUSTRIA**

ADVANTAGE

CASTING FREE FROM INCIPIENT CRACKS

**VOIDS PRACTICALLY ABSENT UNLIKE GRAVITY CAST
OR LOW PRESSURE CAST SPINES**

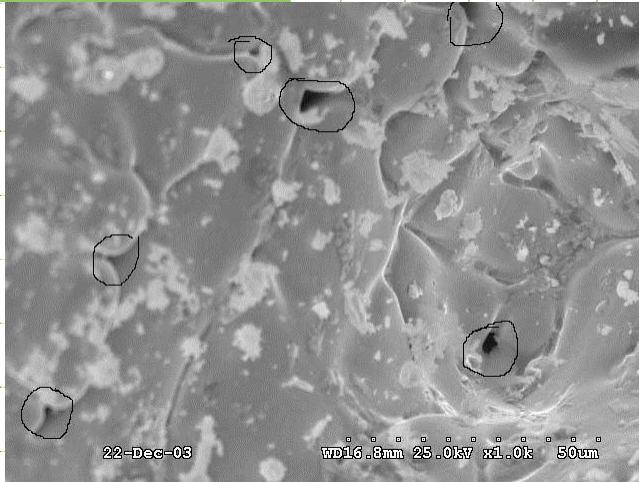
**GRAINS ARE REFINED AND ORIENTED IN DIRECTION
OF MATERIAL FLOW**

AS A RESULT...HIGHER RESISTANCE TO ANODIC CORROSION

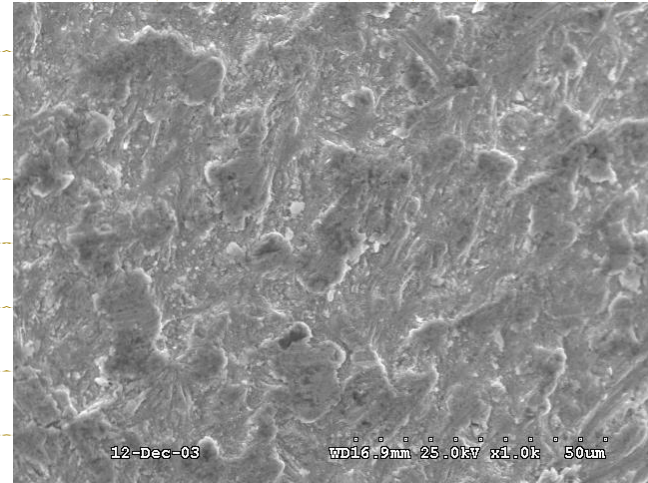
ESPEX Revive

For Greener Renewable Energy Storage

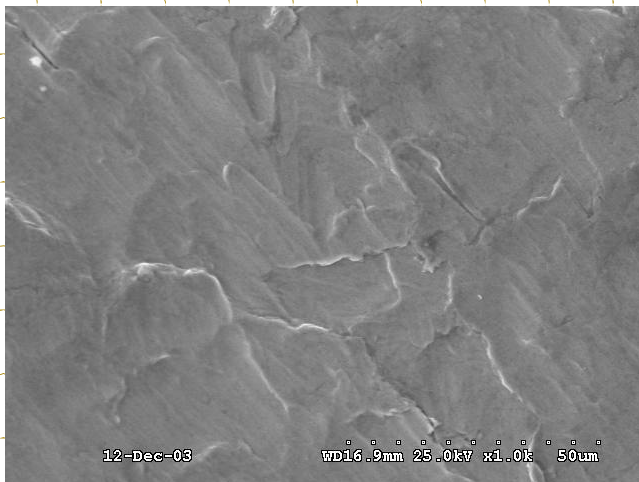
The SPINE ALLOY



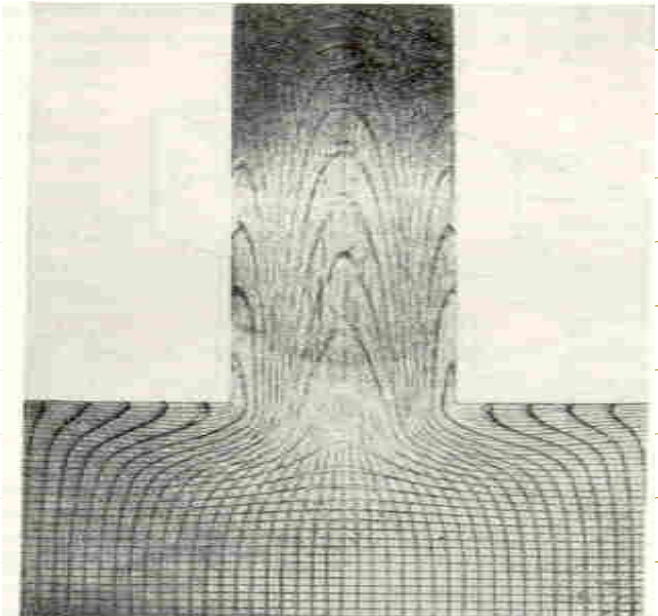
GRAVITY CASTING



LOW PRESSURE CASTING



HIGH PRESSURE
CASTING IN
HADI MACHINES



The ESPEX Revive

The GAUNTLET

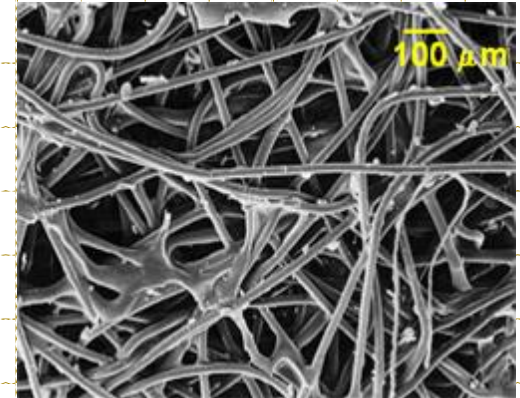
1. Finest pore structure....

The gauntlet are specially designed **non-woven** fabric gives a fine and very tortuous product.

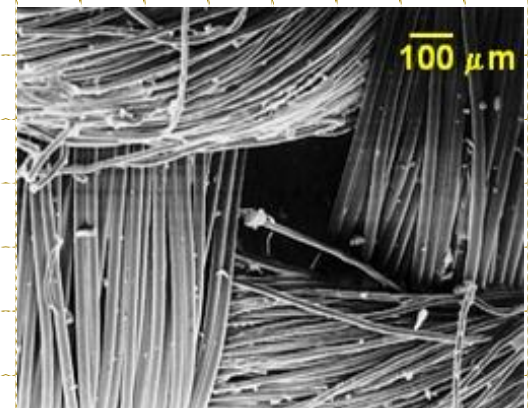
(1/3 reduction of active mass loss)

		Non-woven	Woven
Pore size (μm)	Max.	40	123
	Mean	29	89
	Min.	17	17
Air Permeability (l/min.cm ²)		10.6	7.9

FABRIC STRUCTURE



Non-Woven Polyester



Woven Polyester

The ESPEX Revive

The GAUNTLET

2. Highest Porosity & Electrolyte retention

TYPICAL VALUES:

	Non-Woven fabric gauntlet	Woven fabric gauntlet
Volume porosity (%)	74	40
Acid absorbed (g/cm ²)	0.12	0.05
Acid retained (g/g)	2.70	0.80
Electrical Resistance (Typical value mΩ*cm ²)	180	500

3. Lowest electrical resistance

As a result of the highest porosity and the highest amount of electrolyte retained in its structure, the **NON-WOVEN GAUNTLET** has **less than half** the electrical resistance of a typical woven fabric gauntlet.

4. Unique **Corrugated PVC sheet** for enhanced ion movement and cushion against plate swelling

The ESPEX Revive

NEGATIVE Plate

FEATURES

SPECIALLY DEIGNED GRID ALLOY ENHANCES THE HYDROGEN OVERTOLTAGE, THUS INHIBITING HYDROGEN GENERATION AT THE NEGATIVE ELECTRODE

ESSENTIALLY LOWERS THE RATE OF WATER LOSS MECHANISM FROM THE CELL

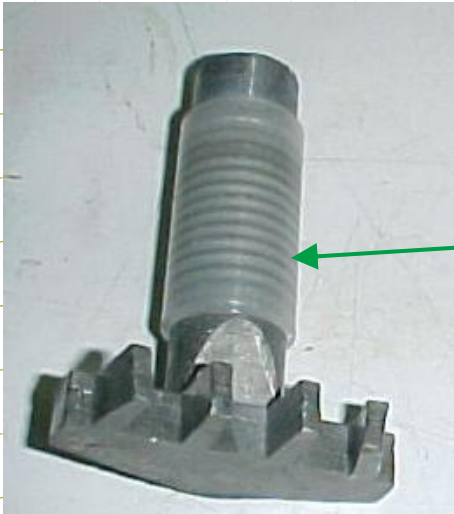
LOW MAINTENANCE CHARACTERISTICS REITERATED

ADVANTAGES

The ESPEX Revive

CELL TERMINAL POST

FEATURES



UNIQUE SAFETY PILLAR DESIGN WITH **BRASS INSERT** FOR DURABILITY AND HIGHER CONDUCTIVITY

SPECIAL DESIGNED ALLOY FOR HIGH CORROSION RESISTANCE

MACHINED SURFACE & SPECIAL PLASTIC ENCAPSULATION TO PREVENT CREVICE CORROSION PHENOMENON –

ADVANTAGES

AVOID OF POSITIVE PILLAR CORROSION

ALLOW GROWTH OF PLATES WITHOUT ACID LEAKAGE

ESPEX Revive

For Greener Renewable Energy Storage

The ESPEX Revive

CELL TERMINAL POST

