



(SECTION 4)



**GENERAL CATALOGUE**

**INDUSTRIAL VRLA BATTERIES**




## THE POWER -WHEN THE RELIABILITY IS CRITICAL.

As a integrated lead-acid battery solution provider, Western Electrical applied its expertise to developed a high quality range of VRLA (Valve Regulated Lead Acid) batteries to satisfy the fast increasing power demand in the field of stand by and storage energy .


Manufactured strictly according the international standards by using some of the highest quality materials and internal components, and Incorporated the technology from flood tubular, AGM to latest GEL, the Western Electrical VRLA industry battery range provides stable, reliable, and trouble free power in the demanding of long service life than ever.

After years of innovative and continuously improvement, this battery range has been developed a wide model selection to cover the most of the stand by and storage application, no matter it’s for general purpose of tiny toy cars, alarm systems, security systems, medical equipment, or the massive power loading in UPS, telecom, IT, power generation station, and the latest green energy of wind and solar power system.


From the automotive battery range for the transportation to the powersports vehicles, Western Electrical batteries are synonymous with quality and excellence, and now with this wide range of deep cycle VRLA industrial batteries, to the next following motive power batteries, we are dedicated to meet all your power requirement, where quality and reliability is critical.




Alarm




Medical




UPS/EPS




Solar power




Renewable energy




Emergency power generators












Power station Energy plant



Transformer stations



Communications systems and telecommunications

THE BATTERY RANGE DETAIL AT A GALANCE	GENERAL	DEEP CYCLE		2V LONG LIFE		FRONT TERMINAL		OPzV	OPzS
	FM(agg)	DFM (agg)	GFM (gel)	DFM (agg)	GFM (gel)	FTA (agg)	FTG(gel)	OPzV (gel)	OPzS (flood)
IMAGES									
TYPICAL APPLICATIONS	Fire alarm systems Danger warning systems UPS systems  Other or misused applications can reduce the performance of the life span of the battery.	UPS systems Fire alarm systems Solar operation Railway technology Telecommunications Remote control systems Emergency power supply Power station operation		Solar operation Substations Telecommunications Emergency power supply Power station operation		UPS systems Telecommunications Switchgear Traffic technology Power station operation		Solar operation Substations Telecommunications Emergency power supply	Telecommunications Emergency power supply Solar operation Safety lighting Power station operation
System	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Closed
Capacity range in Ah	1.3-28 ■■	33-250 ■	33-250 ■	200-3000 ■	200-3000 ■	55-200 ■	55-200 ■	200-3000 ■	200-3000 ■
Voltage	6V, 12V bloc bat.	12V bloc bat.	12V bloc bat.	2V single cells	2V single cells	12V bloc bat.	12V bloc bat.	2V single cells	2V single cells
Positive electrode	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Tubular plates	Tubular plates
Alloy	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-antimony
Electrolyte	AGM **	AGM **	Gel*	AGM **	Gel*	AGM **	Gel*	Gel*	Flood
Typical discharge times	5min - 1h	5min - 1h	5min - 1h	30min - 3h	30min - 3h	5min - 1h	5min - 1h	30min - 10h	1h - 10h
Water refilling intervals (with ceramic plugs)	Not required	Not required	Not required	Not required	Not required	Not required	Not required	Not required	3 years
Electrolyte-tight, screwed terminal design, fully insulated	●	●	●	●	●	●	●	●	●
Standard/hinged cover				●	●				●
Valve	●	●	●	●	●		●	●	
Life span design(years)	5	10	10	18	18	10	10	20	20

Footnote: \* With gelatinised electrolyte; \*\* With absorbed electrolyte in a glass fibre mat; ● Standard; ■ Ah - C10/20°C; ■■ Ah - C20/20°C



## FM Series



### INTRODUCTION

Western Electrical FM battery is a series of superior quality, high performance multi-purpose batteries designed to provide dependable primary and back-up power in domestic and commercial applications.

This battery series incorporate AGM technology which suspends the liquid electrolyte within highly porous glass fiber mat separators. These act as a sponge like material absorbing the loose electrolyte, eliminating accidental leaks or spills. The VRLA recombinant design eliminates the need for regular maintenance and enables fitment in hard to reach locations without the loss of performance, capacity, electrolyte, or cycle life.

### FEATURES

- Capacity range: 1.2Ah-26Ah
- Voltage class: 6V/12
- Long design life(25°C): 5 years
- Low self-discharge rate: < 3%/month
- Good high rate discharge performance
- High sealed reaction efficiency: ≥ 99%
- Wide operation temperature: -20°C to 60°C

### STANDARDS

1. IEC 60896-21/22
2. IEC 61427
3. ISO9001/14001/18001
4. Eurobat guide, long life
5. BS6290 part 4
6. GB/T 22473
7. CE, IATA and IMDG

### BATTERY CONSTRUCTION

- Positive plate-Thick high Sn low Ca grid with special paste.
- Negative plate-Balanced Pb-Ca high density expanded grid for improved recombination efficiency
- Separator - AGM separator, low internal resistance & high assembling pressure to increase cycle life
- Electrolyte: Dilute high purity sulfuric acid
- Battery container and cover- High strength ABS(UL94-HB)and UL94-V0 is optional.
- Pillar seal – Two layers epoxy resin seal.
- Relief valve – Complete with integrated flame arrester.



## FM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/20hr	Length	Width	Height	Total Height	Kg	Type	Position
6V										
1	3-FM-1.3	6	1.3	97	24	52	58	0.3	F3	C
2	3-FM-3.2	6	3.2	134	34	62	68	0.7	F3	C
3	3-FM-4	6	4	70	47	101	107	0.72	F1	A
4	3-FM-4.5	6	4.5	70	47	101	107	0.84	F1	A
5	3-FM-7	6	7	150	34	94	100	1.15	F1	C
6	3-FM-7.5	6	7.5	150	34	94	100	1.3	F1	C
7	3-FM-10	6	10	151	50	94	100	1.82	F2	C
8	3-FM-12	6	12	151	50	94	100	1.95	F2	C
12V										
9	6-FM-1.3	12	1.3	97	43	52	58	0.58	F3	E
10	6-FM-3.3	12	3.3	134	67	60	67	1.3	F3	E
11	6-FM-4	12	4	90	70	101	107	1.43	F1	C
12	6-FM-4.5	12	4.5	90	70	101	107	1.68	F1	C
13	6-FM-5	12	5	90	70	101	107	1.80	F1	C
14	6-FM-7	12	7	151	65	95	101	2.25	F1,F2	F
15	6-FM-7.5	12	7.5	151	65	95	101	2.55	F1,F2	F
16	6-FM-8	12	8	151	65	95	101	2.56	F1,F2	F
17	6-FM-9	12	9	151	65	95	101	3.3	F1,F2	F
18	6-FM-10	12	10	151	98	95	101	3.48	F2	F
19	6-FM-12	12	12	151	98	95	101	4.0	F2	F
20	6-FM-14	12	14	151	98	95	101	4.3	F2	F
21	6-FM-17	12	17	181	76	167	167	5.4	T5	D
22	6-FM-18	12	18	181	76	167	167	5.6	T5	D
23	6-FM-20	12	20	181	76	167	167	6.3	T5	D
24	6-FM-22	12	22	181	76	167	167	6.7	T5	D
25	6-FM-24	12	24	175	166	125	125	8.4	F5/F8	D
26	6-FM-26	12	26	175	166	125	125	9.4	F5/F8	D
27	6-FM-28	12	28	165	126	175	182	10	T9	D



UPS/EPS



Alarm systems



Security systems



Toy cars



Medical equipment



Fire alarm systems



Emergency power generators



Emergency/escape route lighting

## DFM & GMF Series



### FEATURES

DFM series is the general purpose battery with 10 years design life in float service. With up-dated AGM vale regulated technology and high-purity raw materials, the DFM series battery maintains high consistency for better performance and reliable standby service life.

GFM series is specially designed for frequent cyclic performance, idea for standby or frequent cyclic discharge applications under extreme environments. By adopting thicker grids, high purity 99.9% lead and patented Gel Silicon electrolyte, GFM series offers excellent recovery performance after deep discharge under frequent cyclic discharge use.

### FEATURES

- Capacity range: 33Ah- 225Ah
- Voltage class: 12V
- Long design life (25°C): 10 years
- Low self-discharge rate: ≤3%/month
- Ecellent high rate discharge performance
- High sealed reaction efficiency: ≥99%
- Wide operation temperature range: -20°C to 60°C

### STANDARDS

1. IEC 60896-21/22
2. IEC 61427
3. ISO9001/14001/18001
4. Eurobat guide, long life
5. BS6290 part 4
6. GB/T 22473
7. CE, IATA and IMDG

### BATTERY CONSTRUCTION

- Positive plate-Thick high Sn low Ca grid with special paste.
- Negative plate-Balanced Pb-Ca high density expanded grid for improved recombination efficiency
- Separator - AGM separator, low internal resistance & high assembling pressure to increase cycle life
- Electrolyte:
  - (1) Dilute high purity sulfuric acid for DFM series;
  - (2) Gel Silicon for GFM series.
- Battery container and cover- High strength ABS(UL94-HB)and UL94-V0 is optional.
- Pillar seal – Two layers epoxy resin seal.
- Relief valve – Complete with integrated flame arrester.



## DFM & GFM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
DFM-12V AGM Series										
1	6-DFM-33	12	33	195	130	159	183	10.0	F7/F11	C
2	6-DFM-35	12	35	195	130	159	183	11.7	F7/F11	C
3	6-DFM-38	12	38	197	165	170	170	12.1	F4/F11	D
4	6-DFM-40	12	40	197	165	170	170	12.4	F4/F11	D
5	6-DFM-45	12	45	197	165	170	170	13.5	F4/F11	D
6	6-DFM-50	12	50	230	138	208	213	16.0	F15/F11	C
7	6-DFM-55	12	55	230	138	208	213	16.5	F15/F11	C
8	6-DFM-65	12	65	350	166	176	176	21.5	F15/F11	C
9	6-DFM-75	12	75	258	168	208	212	23.0	F15/F11	C
10	6-DFM-80	12	80	258	168	208	212	24.0	F15/F11	C
11	6-DFM-90	12	90	305	168	208	212	28.0	F15/F12	C
12	6-DFM-100	12	100	330	172	215	221	30.5	F15/F12	C
13	6-DFM-120	12	120	406	174	208	233	34.0	F15/F12	C
14	6-DFM-135	12	135	344	173	280	282	41.5	F15/F12	C
15	6-DFM-150	12	150	485	172	240	240	42.5	F15/F12	C
16	6-DFM-180	12	180	525	243	220	245	53.0	F16/F12	E
17	6-DFM-200	12	200	525	243	220	245	60.0	F16/F13	E
18	6-DFM-250	12	250	520	268	220	249	72.5	F16/F14	E
GFM-12V AGM GEL SERIES										
1	6-GFM-33	12	33	195	130	159	183	10.0	F11	C
2	6-GFM-35	12	35	195	130	159	183	11.7	F11	C
3	6-GFM-38	12	38	197	165	170	170	12.4	F11	D
4	6-GFM-40	12	40	197	165	170	170	13.0	F11	D
5	6-GFM-45	12	45	197	165	170	170	13.7	F11	D
6	6-GFM-50	12	50	230	138	208	213	16.0	F11	C
7	6-GFM-55	12	55	230	138	208	213	16.5	F11	C
8	6-GFM-65	12	65	350	166	176	176	21.1	F11	C
9	6-GFM-75	12	75	258	168	208	212	23.8	F11	C
10	6-GFM-80	12	80	258	168	208	212	24.0	F11	C
11	6-GFM-90	12	90	305	168	208	212	28.5	F12	C
12	6-GFM-100	12	100	330	172	215	221	31.5	F12	C
13	6-GFM-120	12	120	406	174	208	233	35.3	F12	C
14	6-GFM-135	12	135	344	173	280	282	42.0	F12	C
15	6-GFM-150	12	150	485	172	240	240	44.2	F12	C
16	6-GFM-180	12	180	525	243	220	245	54.5	F12	E
17	6-GFM-200	12	200	525	243	220	245	61.0	F13	E
18	6-GFM-250	12	250	520	268	220	249	68.0	F14	E





## DFM & GMF 2V Series



### INTRODUCTION

DFM 2V series is the general purpose battery with 18 years design life in float service. With heavy duty grids, thicker plates, special additives and updated AGM valve regulated technology, the DFM 2V battery provides consistent performance and long service life. The new grid design effectively reduces the internal resistance, which provides higher specific energy density and excellent high rate discharge characteristics.

GFM 2V Series come with silicon Gel electrolyte on the basis of DFM 2V series.

### FEATURES

- Capacity range: 200Ah-3000Ah
- Voltage class: 2V
- Long design life: more than 18 years
- Polarity sign: symmetrical and more clear
- Low self-discharge rate:  $\leq 3\%$  per month
- High recombination efficiency:  $\geq 99\%$
- Compact structure and high specific energy
- Wide operation temperature:  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$

### BATTERY CONSTRUCTION

- Grid: thicker grid and radiative grid structure
- Positive plate: Pasted flat type, latest grid alloy
- Separator: AGM separator with high adsorptive and low resistance
- Battery container: High strength ABS;
- Post sealing: patent multi-layer post sealing with M8 copper insert terminal;
- Safety Valve: sensitive operate pressure and reliable equipped with explosion-proof arrester and acid filter.

### MAIN BENEFITS

- Non-Spillable, fully sealed technology ensures no electrolyte leakage, guarantees the handling safety and efficient operation in any position.
- Long service life in float or cyclic service up to 18 years @  $25^{\circ}\text{C}$ .
- Maintenance-free, no need to check the gravity of the electrolyte or add water during the float service life.
- Heavy Duty lead-calcium alloy grids ensure good performance and service life in both float and cyclic applications.
- Low self discharge rate due to the Lead-Calcium alloy grids, allowed long time storage without recharge.



## DFM - 2V AGM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg $\pm 5\%$	Type	Position
1	DFM2-200	2	200	172	111	330	365	13.0	F10	A
2	DFM2-300	2	300	172	150	330	365	18.5	F10	G
3	DFM2-400	2	400	211	175	330	365	26.2	F10	H
4	DFM2-500	2	500	241	175	330	365	32.0	F10	H
5	DFM2-600	2	600	301	175	330	365	38.0	F10	H
6	DFM2-750	2	750	410	175	330	365	46.0	F10	J
7	DFM2-800	2	800	410	175	330	365	51.5	F10	J
8	DFM2-1000	2	1000	475	175	330	365	62.0	F10	J
9	DFM2-1200	2	1200	475	175	330	365	68.5	F10	J
10	DFM2-1500	2	1500	401	350	342	378	96.6	F10	K
11	DFM2-2000	2	2000	490	350	342	378	130.0	F10	L
12	DFM2-3000	2	3000	712	353	340	382	192.0	F10	L

## GFM - 2V AGM GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg $\pm 5\%$	Type	Position
1	GFM2-200	2	200	172	111	330	365	13.5	F10	A
2	GFM2-300	2	300	172	150	330	365	19.0	F10	G
3	GFM2-400	2	400	211	175	330	365	27.0	F10	H
4	GFM2-500	2	500	241	175	330	365	32.4	F10	H
5	GFM2-600	2	600	301	175	330	365	38.5	F10	H
6	GFM2-750	2	750	410	175	330	365	46.0	F10	J
7	GFM2-800	2	800	410	175	330	365	52.0	F10	J
8	GFM2-1000	2	1000	475	175	330	365	62.5	F10	J
9	GFM2-1200	2	1200	475	175	330	365	69.5	F10	J
10	GFM2-1500	2	1500	401	350	342	378	98.0	F10	K
11	GFM2-2000	2	2000	490	350	342	378	132.0	F10	L
12	GFM2-3000	2	3000	712	353	340	382	194.0	F10	L

**Bringing reliable power to the green**







## FTA & FTG Series



### INTRODUCTION

The FTA (Front Terminal AGM) series is specially designed for telecom use with over 10 years life design in floating service. By adopting a new AGM separator and centralized venting system, this batteries are featured none-spillable and allowed to be installed in any position with high safety reliability.

The FTG(Front Terminal GEL) series come with silicon Gel electrolyte on the basis of FTA series, longer in life design, higher security in leakage , which is better suit for the variable and complex environment situation.

### FEATURES

- Capacity range:40Ah-200Ah
- Voltage class:12V
- Long design life (25°C): over 10 years
- Low self- discharge rate:≤3%month
- Good high rate discharge performance
- High sealed reaction efficiency:≥99%
- Wide operation temperature range:-20°C to 60°C

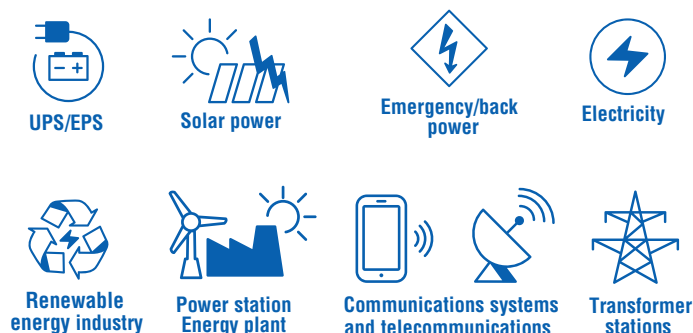
### BATTERY CONSTRUCTION

- Narrow structure: each cell has same heat dissipation efficiency, thus effective to prevent “terminal runaway”.
- Plate: Pasted flat type
- Centralized vent system: battery internal gas can be vented out of the system and flame arrester is equipped.
- Terminal cover: avoiding short circuit and dust, the inspection hole is available for maintenance:
- Separator: improved AGM separator for lower electric current resistance, higher compression pressure to increase deep cycle life.
- Terminal sealing: double sealing technic.

### MAIN BENEFITS

1. These two battery series for telecom industry comes with slim shape design and front connection, easy for installation and maintenance, space also can be saved.
2. Radial grid design plus tight assembly technology assures this rechargeable battery prominent high rate discharge performance.
3. Totally maintenance free design makes sure that the electrolyte volume can be hardly reduced during use and addition of water is not necessary during the battery service life.
4. Long service life due to unique corrosion resistant grid alloy, the power storage cell can serve for more than over 10 years in standby current at a temperature of 25°C.
5. Fully made from high purity materials, the front access AGM battery comes with extremely low self discharge, while the gas recombination technology makes this power supply device environment friendly.

### TYPICAL APPLICATION



## FTA - 12V AGM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	FTA12-55	12	55	277	105	222	222	17	F11	E
2	FTA12-75	12	75	562	114	188	188	27	F11	E
3	FTA12-80	12	80	562	114	188	188	27.5	F14	E
4	FTA12-90	12	90	507	109	223	238	29	F14	E
5	FTA12-100	12	100	507	109	223	238	30	F14	E
6	FTA12-100S	12	100	395	110	285	285	31.5	F14	E
7	FTA12-120	12	120	550	110	288	288	42	F9	E
8	FTA12-150	12	150	550	110	288	288	45	F9	E
9	FTA12-180	12	180	560	125	316	316	52.5	F9	E
10	FTA12-200	12	200	560	125	316	316	56	F9	E

## FTG - 12V AGM GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	FTG12-55	12	55	277	105	222	222	17.5	F11	E
2	FTG12-75	12	75	562	114	188	188	27.3	F11	E
3	FTG12-80	12	80	562	114	188	188	28	F14	E
4	FTG12-90	12	90	507	109	223	238	29.5	F14	E
5	FTG12-100	12	100	507	109	223	238	31	F14	E
6	FTG12-100S	12	100	395	110	285	285	32	F14	E
7	FTG12-120	12	120	550	110	288	288	43	F9	E
8	FTG12-150	12	150	550	110	288	288	47	F9	E
9	FTG12-180	12	180	560	125	316	316	54	F9	E
10	FTG12-200	12	200	560	125	316	316	58	F9	E







## OPzV 2V Series



### INTRODUCTION

With Tubular Plate GEL technology specially for stationary applications, Western Electrical OPzV tubular battery series is characterized by maintenance-free, long service life and excellent reliable performance even in harsh conditions and excellent durability under cyclic use, thus providing a premium efficient and cost effective energy solution.

Optimum design, according to DIN international standards, exclusive use of high quality raw materials, robust construction and the state of art manufacturing processes make this OPzV battery series as an ideal solution for high demanding stationary situation.

### FEATURES

- Capacity range( $C_{10}$ ): 200Ah-3000 Ah
- Voltage: 2V
- Floating design life: 20 years at 25°C
- Cycle life: 80% DOD >2000cycles; 25% DOD>6000cycles.
- Self discharge rate: less than 2% per month.
- Wide operation temperature: -40°C~70°C.
- Storage life : 2 years at 20°C after fully charged.
- Excellent deep discharge recovery performance.

### STANDARDS

- IEC 60896-21 and compliant to IEC 60896-22.
- IEC 61427 requirements for photovoltaic energy systems.
- Optimized for deep discharge recovery in accordance to DIN 43539T5 Part 5.
- Conform to DIN 40742 specifications for OPzV cells and DIN 40744 for OPzV blocks.
- Compliant to safety requirements of EN 50272-2 for stationary batteries.
- Certified to ISO 9001, ISO 14001, BS OHSAS 18001.

### MAIN BENEFITS

#### Long service life

Tubular positive plates, unique sliding pole design (in most models) and special alloy compositions offer superior cycle and service life in stationary applications field.

#### Performance and reliability

Optimized design, qualified raw materials, and state-of-the-art production facilities ensure industry leading performance that exceeds all applicable international standards.

#### Maintenance free

Maintenance-free design without water topping-up needs.

#### Space optimization

Vertical and horizontal installation. Racks designed for easy and quick installation, battery maintenance and optimal space utilization.

#### Safety

Compliant with Global Standards and verified by independent third party certification agencies.

#### Complete solution

Complete and ready to install systems with all the necessary accessories available if necessary.

#### Optimum Total Cost of Ownership

Low cost of ownership particularly in hybrid systems where using batteries can greatly reduce the genset daily run time resulting in fuel savings and less CO<sub>2</sub> emission.

### TYPICAL APPLICATION



UPS/EPs



Solar power



Emergency/back power



Electricity



Renewable energy industry



Power station Energy plant



Communications systems and telecommunications



Transformer stations



## OPzV - 2V TUBULAR GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	OPzV-200	2	200	103	206	354	380	17	M8	G
2	OPzV-250	2	250	124	206	354	380	20.5	M8	G
3	OPzV-300	2	300	145	206	354	380	24.5	M8	G
4	OPzV-350	2	350	124	206	470	496	28	M8	G
5	OPzV-420	2	420	145	206	470	496	32.5	M8	G
6	OPzV-490	2	500	166	206	470	496	37.5	M8	G
7	OPzV-600	2	600	145	206	645	671	46	M8	G
8	OPzV-700	2	700	225	206	470	496	52	M8	G
9	OPzV-770	2	770	225	206	470	496	56	M8	G
10	OPzV-800	2	800	191	210	645	671	64	M8	H
11	OPzV-1000	2	1000	233	210	645	671	74	M8	H
12	OPzV-1200	2	1200	275	210	645	671	92	M8	H
13	OPzV-1500	2	1500	275	210	795	821	110	M8	H
14	OPzV-2000	2	2000	399	212	772	797	152	M8	I
15	OPzV-2500	2	2500	487	212	772	797	190	M8	J
16	OPzV-3000	2	3000	576	212	772	797	225	M8	J

#### 1 Positive Plates

- Tubular plate design
- Optimized Lead Calcium Tin Alloy reducing hydrogen evolution
- Red Lead in-house production by Pure Lead

#### 2 Negative Plates

- Pasted negative plates of grid design
- Optimized Lead Calcium Tin Alloy
- Robust construction

#### 3 Gauntlet

- Highly porous woven material
- Increased diameter with high Positive Active Mass (PAM)

#### 4 Bottom Bar

- Secure fitment with gauntlet

#### 5 Terminal Brige

- Manufactured with high quality, robust materials following certified processes

### BATTERY CONSTRUCTION

#### 12 Terminals

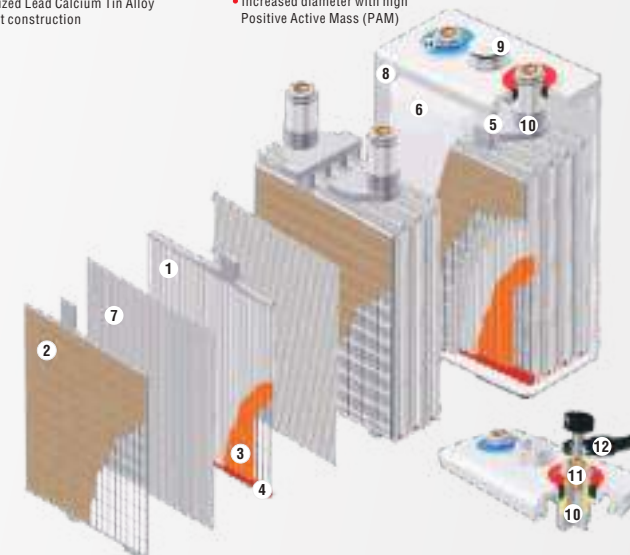
- Threaded female M10 terminal posts

#### 11 Intercell Connector

- Flexible
- Copper
- Fully insulated
- Fixed with plasticized safety screw and probe hole on the top

#### 10 Sliding Poles

- Premium sliding design with brush insert and rubber seal in the lid
- Hardness and acid resistance



#### 6 Electrolyte

- Immobilized in GEL form
- World class equipment for GEL production and battery filling

#### 7 Separators

- High porosity grade material

#### 8 Container and Lid

- Heavy duty ABS material
- Optionally flame retardant (Class V0) ABS material
- Thick wall container

#### 9 Valve

- Pressure relief
- Integral flame arrestor

**Innovative  
Technology  
Proven Expertise  
Best in Class  
Solutions**





## OPzS 2V Series



### INTRODUCTION

Vented Tubular Plate Batteries for stationary application, Western Electrical OPzS battery series is characterized by low maintenance requirements, long service life and excellent capacity performance while operating in high temperature or unstable power network, thus providing a premium efficient and cost effective energy solution.

Optimized design, according to DIN international standard, exclusive use of high quality raw materials, robust construction and state of the art manufacturing process make the OPzS range the ideal solution for stationary application demanding high level of safety and reliability.

### FEATURES

- Capacity range(C10): 200-3000Ah
- Voltage: 2V
- Floating design life: 20 years at 25°C
- Cycle life: more than 2200 at 80% DOD and 6000 at 25% DOD
- Self discharge rate: 5% per month
- Wide operation temperature: -40°C ~70°C

### STANDARDS

- Compliant with IEC 61427 requirements for photovoltaic energy systems.
- Compliant with IEC 60896-11 requirements for vented lead-acid batteries.
- Conform to DIN 40736-1 specifications for OPzS cells and DIN 40737-3 for OPzS blocks.
- Compliant to safety requirements of EN 50272-2 for stationary batteries.
- Certified with ISO 9001, ISO 14001, BS OHSAS 18001.

### BENEFITS

- Tubular flooded technology battery
- High charge acceptance performance
- Excellent deep discharge recovery performance
- Super long service life and low maintenance
- Reliable and robust against harsh environments
- Special filter unit for acid fog proof
- High quality and high safety
- Special terminal sealed technology
- Less sensitive to heat issues
- Transparent containers can be convenient to observe
- Design life at 25°C (77°F): 20+ years



## OPzS - 2V TUBULAR FLOODED SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Dry Weight	Terminal	
		V	Ah/20hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	OPzS2-200	2	200	103	206	354	409	13.2	M8	G
2	OPzS2-250	2	250	124	206	354	409	15.2	M8	G
3	OPzS2-300	2	300	145	206	354	409	18.5	M8	G
4	OPzS2-350	2	350	124	206	470	525	21.0	M8	G
5	OPzS2-420	2	420	145	206	470	525	24.6	M8	G
6	OPzS2-490	2	490	166	206	470	525	28.4	M8	G
7	OPzS2-600	2	600	145	206	645	700	34.5	M8	G
8	OPzS2-800	2	800	191	210	645	700	47.0	M8	H
9	OPzS2-1000	2	1000	233	210	645	700	58.4	M8	H
10	OPzS2-1200	2	1200	275	210	645	700	68.6	M8	H
11	OPzS2-1500	2	1500	275	210	795	850	83.5	M8	I
12	OPzS2-1750	2	1750	399	214	771	826	96.5	M8	I
13	OPzS2-2000	2	2000	399	214	771	826	112.0	M8	I
14	OPzS2-2250	2	2250	487	212	771	826	128.6	M8	I
15	OPzS2-2500	2	2500	487	212	771	826	142.0	M8	J
16	OPzS2-3000	2	3000	576	212	771	826	168.0	M8	J

### CONSTRUCTION OF OPzS SERIES BATTERY

- Positive Plates:** Tubular plate with lead selenium grid alloy and woven gauntlet.
- Negative Plates:** Fully enveloped flat pasted plate with lead selenium grid alloy.
- Gauntlet:** Highly porous woven material, low electrical resistance.
- Bottom Bar:** Ultrasonic welding.
- Terminal Brige:** Welding with high quality alloy.
- Electrolyte:** Dilute solution of sulfuric acid SG1.240 ±0.01 at 20°C.
- Separators:** Micro porous plastic separators.
- Container:** High impact resistant, transparent SAN container.
- Valve Vent:** Fully tested Flame arrestor ceramic vents.
- Sliding Poles:** Premium sliding design with rubber seal in the lid.
- Internal Intercell Connector:** Fully insulated copper.
- Terminal:** Robust design d.30 mm with M10 threaded insert.



### THE EFFECTIVE ENERGY SOLUTION

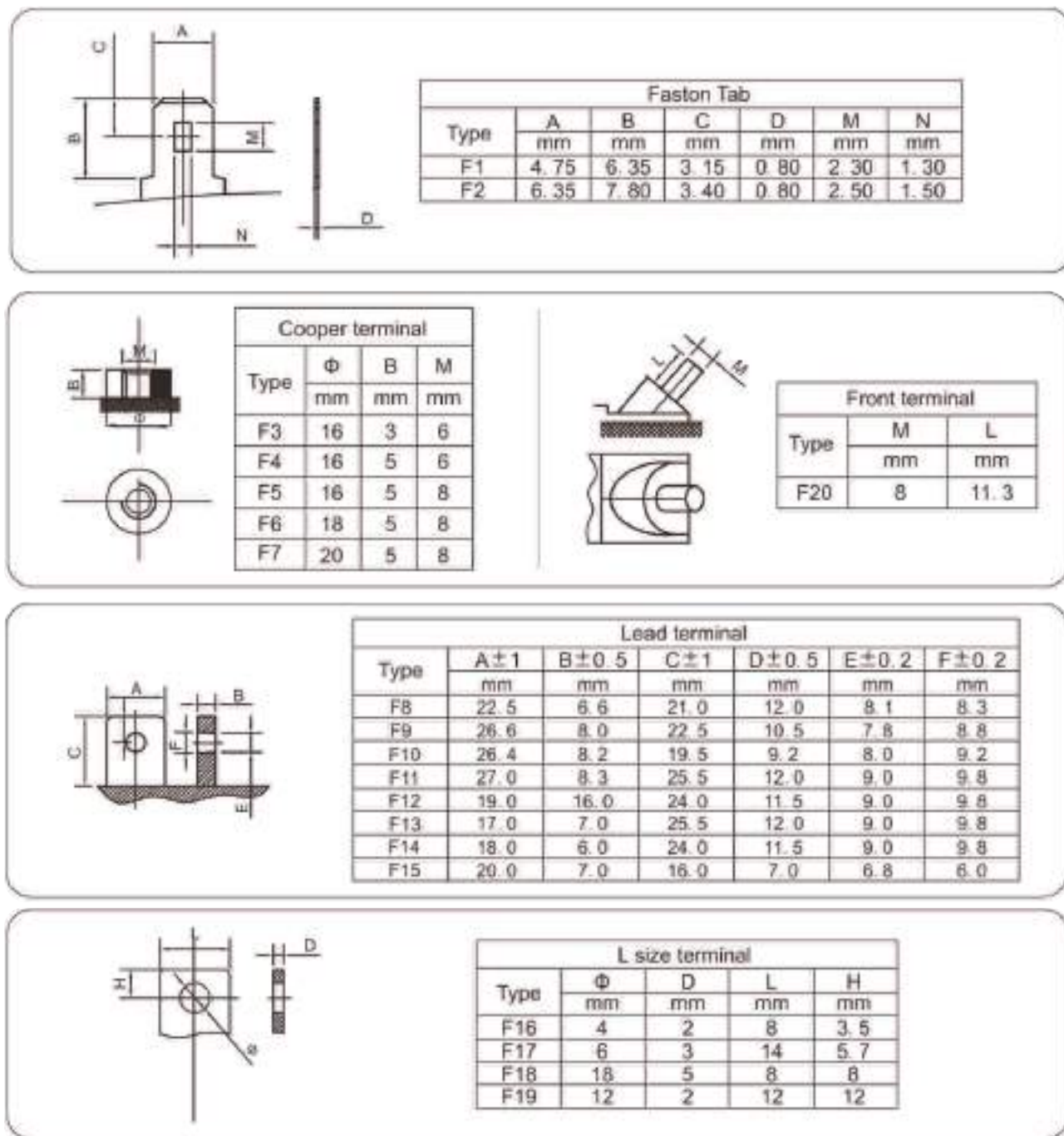
OPzS batteries are similar to OPzV batteries in the sense that they both use tubular plate technology and with similar applications. The main difference is that OPzV batteries utilize gel technology in a sealed container, require zero maintenance, while OPzS batteries are flooded and require low maintenance from time to time. Western Electrical OPzS series batteries are well-known for their utilization of corrosion-resistant alloy, eliminating intergranular corrosion, which is one of the most common causes of cell failure. Our OPzS batteries are designed and engineered to offer high operational reliability and excellent cyclability.



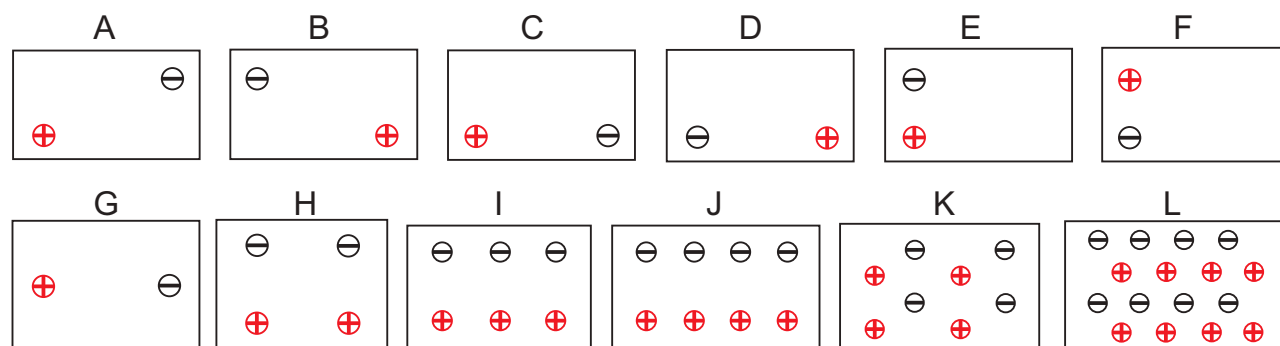




## TERMINAL DRAWING: F1 - F19



## TERMINAL POSITION: A, B, C, D, E, F, G, H, I, J, K, L



## WARNING AND SAFETY INSTRUCTION FOR LEAD ACID BATTERIES.



the operating instructions and keep them close to the battery. work on batteries should be carried out by skilled personnel only!



No smoking! Do not expose batteries to naked flames, glowing embers or sparks, as it may cause the battery to explode.



use protective glasses and clothes when working on batteries. pay attention to the accident prevention rules as well as EN IEC 62485-2 and EN 50110-1.



Risk of explosion and fire, avoid short circuits! Caution: metal parts of the battery are always live. Do not place tools or other metal objects on the battery! Do not remove the plugs.



Electrolyte is strongly corrosive. Risk of corrosion caused by leaking electrolyte.



Batteries and cells are heavy. Ensure secure installation! use only suitable handling equipment. Lifting hooks must not damage the cells, connectors or cables.



Dangerous voltage! Caution: Metal parts of the battery are always alive - avoid contact and short circuits. Do not place tools or other metal object on the battery!



Acid splashes into the eyes or on the skin must be washed with plenty of water. In case of accident after abundant fushing consult a doctor immediately! Clothing contaminated by acid should be washed in water.

## WARRANTY TERMS AND CONDITIONS FOR VRLA INDUSTRY LEAD ACID BATTERY

In accordance with the terms and conditions, we offer a individual warranty period for the faultless operation of the battery, starting after the date of purchase. The purchase must be proven with the original receipt and a warranty certificate. The receipt and warranty certificate must contain the following information:

- + name and address of the buyer;
- + date of purchase;
- + accurate battery information: type, serial number, nominal voltage and capacity;
- + stamp and signature of retailer.

WE HEREBY UNDERTAKE THAT ALL FAULTS AND TECHNICAL DIFFICULTIES WITH PRODUCTS UNDER WARRANTY WILL BE FIXED FREE OF CHARGE UNDER THE FOLLOWING CONDITIONS:

- + the faulty battery is delivered with a valid warranty certificate and original receipt;
- + the battery has been used and maintained in accordance with the operation manual;
- + the battery is being charged using a suitable charger;
- + the charging currents do not exceed the current that regulated;
- + the battery is without any mechanical damage;
- + the installation procedure and service repairs have been performed by the manufacturer or an authorized person;
- + the manufacturer's repair service was informed immediately after the occurrence of the fault.

WARRANTY IS VALID FOR ANY FAULTS THAT OCCUR DURING THE WARRANTY PERIOD AND FOR DEFECTS THAT CAUSE THE BATTERY TO STOP FUNCTIONING PROPERLY IN ACCORDANCE WITH THE MANUFACTURER'S INFORMATION:

- + the capacity of a fully charged battery is less than 80% of the nominal capacity (C<sub>10</sub>) at a nominal temperature of 20°C;
- + a short-circuit in one or more cells of the battery;
- + an obvious disconnection within the cell.

CONTACT INFORMATION FOR CUSTOMER CLAIMS:

- + please contact your supplier.

WARRANTY DOES NOT APPLY IN THE FOLLOWING CASES:

- + mechanical damage or ordinary wear of the battery;
- + improper installation or maintenance work conducted by unauthorized personnel;
- + improper or careless handling of the battery that is not in accordance with the manufacturer's instructions;
- + failure to perform regular capacity measurements;
- + the introduction of additives into the electrolyte.

WARRANTY DOES NOT APPLY IN CASE OF FAILURE TO COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS.

The warranty includes services like maintenance work and the provision of necessary replacement parts. We guarantee the availability of replacement parts for 3 year after the end of the warranty period. A capacity test performed by a unauthorized person and without our supervision is not binding in terms of this warranty.

THE MANUFACTURER IS NOT LIABLE FOR ANY INDIRECT DAMAGE THAT COULD POTENTIALLY OCCUR DUE TO THE FUNCTION OR MALFUNCTION OF THE BATTERY.





# VRLA

## INDUSTRY BATTERIES



When You Need Power... We'll be there.