



# Batteries for Marine & RV

**E-NEX**


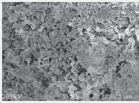

**E-NEX AGM™**



**ATLAS BX™**  
THE POWER COMPANY

# E-NEX Series Technology

## XDC Series Unique Consturction Features & Benefits

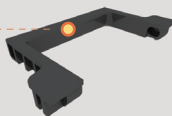
Features	Benefits
<p><b>Dual Purpose Plate(Starting &amp; Deep Cycling)</b></p> <ul style="list-style-type: none"> <li>- X-Frame (Pos. / Neg.)</li> <li>- Special (Thicker) Plate with High Density Active Material</li> <li>- Calcuim + High Tin Alloy</li> <li>- New Special Tissue</li> </ul> <p><b>Vibration Resistant Design</b></p> <ul style="list-style-type: none"> <li>- Low Resistance Envelope Separator with Glass Mat</li> <li>- Hot Melt Glue</li> <li>- Reinforced Container</li> </ul>	<p><b>Longer Life &amp; High Cycle Stability</b></p> <ul style="list-style-type: none"> <li>- High endurance in deep cycle service</li> <li>- Flexible design for semi-traction (deep cycling) and starting</li> <li>- Prevent internal short circuits</li> <li>- More electric power to terminal posts</li> <li>- The MF endurance by reserving more electrolyte volume over the plate</li> </ul> <p><b>Minimal self-discharge : can be safely stored for longer</b></p> <p><b>Built strong to withstand the pounding and vibration of marine, 4WD and heavy vehicle use</b></p>
<b>X-Frame (Pos. / Neg.)</b>	
 <p><b>Full Framed Grid (Round edge design)</b></p> <ul style="list-style-type: none"> <li>- Full Framed Grid design restrains grid growth and short-circuits.</li> <li>Benefit : Upgraded quality, and longer life span.</li> </ul> <p><b>Unique designed grid for electric flow</b></p> <ul style="list-style-type: none"> <li>- As punching grids mechanically, it ensures high electric conductivities and strong adhesion of active materials.</li> <li>Benefit: Providing higher starting power, stable structure, and few corrosion.</li> </ul>	
 <p><b>Upgraded Active Material</b></p> <ul style="list-style-type: none"> <li>- Provide high endurance in deep cycle service</li> </ul>	 <p><b>Low Resistance Envelope Separator with Glass Mat</b></p> <ul style="list-style-type: none"> <li>- Prevent internal short circuits between positive and negative plates</li> </ul>

## Common Structure & Advantage (Marine & RV)

### 1. Convenience and stability

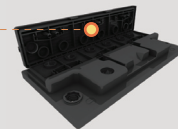
#### Ergonomically Designed Handle

- Provide an easy transportation and installation



#### Special Sealed Cover

- Protect form acid leakage and minimize gassing
- Frame Arrestor prevents an inflow of outside spark



### 2. Excellent Performance

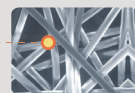
#### Hot Melt Glue to resist vibration

- Ensure resistance to outside impact and vibration, and minimize loss of active materials



#### Special Tissue

- Provide a mechanical support for adhesion of active material during the service



#### Magic Eye Indicator

- Easy to check Charging-State

#### Marine Twin (Dual=SAE/Wing-Nut) Terminal

- Quick connection
- Compatibility with TOP POST and STUD

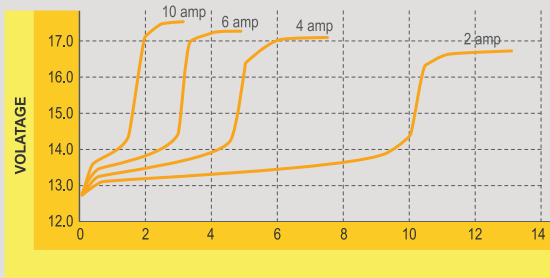


# E-NEX Series

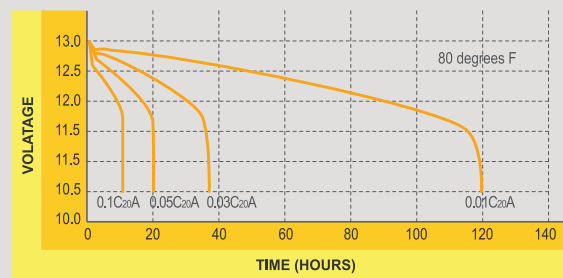
## Charging instruction and H.U.P

### Charge and Discharge Characteristics

Charge characteristics from 20% DOD, XDC31 MF



Discharge characteristics



### Charging Method

- ※ Batteries should be recharged within 24hours after each period of use.
- ※ Charging time by various charging rate can be determined by the the SOC(state of charge)

#### Method 1 ; Constant Voltage Charge (Recommended Method)

Type	Voltage Setting
Daily Cycle Service	14.4~14.8
Floating Service	13.2~13.7
Equalizing	15.5

\* Unit Average at 77°F (25°C)

- ※ Every 30 to 90 days, conduct the equalizing charge.  
Daily cycle service and deep discharging service need more frequent equalizing.

#### End of charge

- Current : below 1.0A during charge.
- Stabilized open circuit voltage : 12.75V or higher.

#### Method 2 ; Constant Current charge

Battery		XDC24MF	XDC27MF	XDC31MF
SOC	OCV	4.0A	4.5A	5.0A
100%	12.75V	-		
75%	12.40V	6Hr		
50%	12.20V	12Hr		
25%	12.00V	18Hr		
0%	11.90V	24Hr		

#### End of charge

- Maxium voltage output across the battery terminals is maintained at constant level for 2 hours during the charge.
- Stabilized open circuit voltage : 12.75V or higher.

Hours of Usable Power(H.U.P)			
Amp.Draw	5A	15A	25A
XDC24MF	15.4hrs.	4.3hrs.	2.4hrs.
XDC27MF	17.8hrs.	4.9hrs.	2.7hrs.
XDC31MF	20.0hrs.	5.6hrs.	3.1hrs.

# E-NEX Series

## Specification

### XDC Series : Deep Cycle & Starting



Type No.	C20 (AH)	CA (32°F/0°C)	CCA (0°F/-18°C)	RC (Min)	Dimension(mm)				Layout	Terminal	Hold-down
					L	W	H	TH			
XDC24MF	80	625	500	140	257	172	200	220	FIG.1	MARINE TWIN	B1
XDC27MF	90	750	600	170	302	172	200	220	FIG.1	MARINE TWIN	B1
XDC31MF	100	810	650	180	330	172	218	242	FIG.3	MARINE TWIN*	

\* XDC31MF: TOP POST and STUD are available

### DC Series : Dual Purpose (Starting & Cycling)



Type No.	C20 (AH)	CA (32°F/0°C)	CCA (0°F/-18°C)	RC (Min)	Dimension(mm)				Layout	Terminal	Hold-down
					L	W	H	TH			
DC24MF	80	850	680	140	257	172	200	220	FIG.1	MARINE TWIN	B1
DC27MF	90	920	750	170	302	172	200	220	FIG.1	MARINE TWIN	B1
DC31MF	100	1000	800	180	330	172	218	242	FIG.3	MARINE TWIN*	

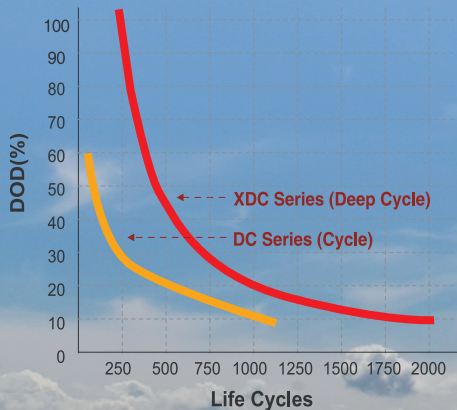
\* DC31MF: TOP POST and STUD are available

### XV Series : Marine Starting



Type No.	Voltage [V]	CA (32°F/0°C)	CCA (0°F/-18°C)	RC (Min)	Dimension(mm)				Layout	Terminal	Hold-down
					L	W	H	TH			
MV24MF	12	700	560	105	257	172	200	220	FIG.1	MARINE TWIN	B1
CV24MF	12	750	600	125	257	172	200	220	FIG.1	MARINE TWIN	B1
XV24MF	12	900	720	140	257	172	200	220	FIG.1	MARINE TWIN	B1
XV27MF	12	900	720	160	302	172	200	220	FIG.1	MARINE TWIN	B1
XV30HMF	12	1000	800	180	325	172	200	220	FIG.1	STANDARD	B1
XV31MF	12	1000	800	180	330	172	218	242	FIG.3	MARINE TWIN*	

\* XV31MF: TOP POST and STUD are available



# E-NEX Series

## Specification, Terminal & Layout

### Lawn & Garden



Type No.	Voltage [V]	CA (32°F/0°C)	CCA (0°F/-18°C)	RC (Min)	Dimension(mm)				Layout	Terminal
					L	W	H	TH		
U1MF-H	12	235	190	27	205	132	160	185	FIG.1	U1 LUG
U1MF-S	12	310	250	32	205	132	160	185	FIG.1	U1 LUG
U1MF-X	12	375	300	40	205	132	160	185	FIG.1	U1 LUG
U1RMF-H	12	235	190	27	205	132	160	185	FIG.2	U1 LUG
U1RMF-S	12	310	250	32	205	132	160	185	FIG.2	U1 LUG
U1RMF-X	12	375	300	40	205	132	160	185	FIG.2	U1 LUG

### Terminal

	STANDARD	STUD	MARINE TWIN	U1 LUG	TOP POST
Positive Terminal		3/8" -16 THREADS 	5/16" -18 THREADS 		
Negative Terminal		3/8" -16 THREADS 	5/16" -18 THREADS 		

### Layout

FIG. 1	FIG. 2	FIG. 3

### Hold Down

B1	B13



# Marine & RV E-NEX AGM

## Absoulte Power & Safety

### AGM (Absorbent Glass Mat) Separator

- Minimized electric resistance, half of flooded battery
  - Provide outstanding cranking power, due to the enhanced ionic transfer
- No plate movement and completely spill and leak-proof
  - Installation may be at any angle position, even horizontally

### X-FRAME

- Full Frame with Stamped Grid Technology
  - Longer Life, Stabler Starting Power, and Stronger durability

### UMF Ultra Micro Fiber

- Addition of fine fiber to active material
  - Increase performance rate of active material

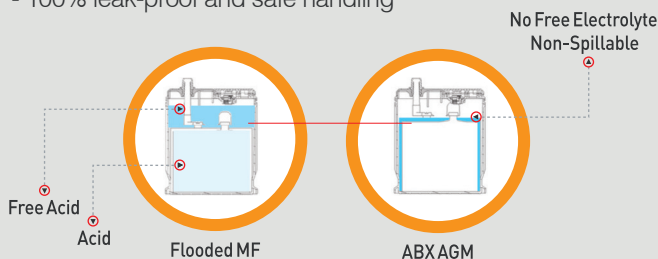
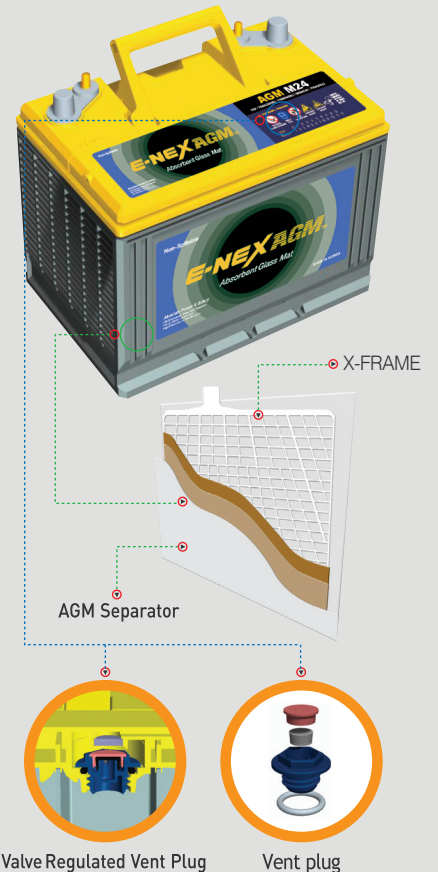
### HDA High Density Active-Material

- High pressure of glass mat acting against the plate
  - Prevent from shedding of active material and as a result, ensure longer life

### VRLA Sealed Construction advanced gas recombination Tech.

#### Valve Regulated Vent plug

- Enable to stable cranking power
- Provide constant partial pressure in each cell
- 100% leak-proof and safe handling



### High Dimension of Grid Structure

- Provide more reaction surface area and increase of energy density

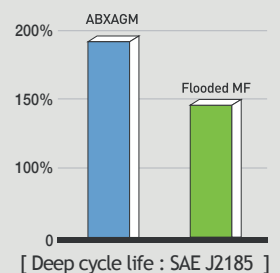
### Starved Electrolyte Structure

- Increase of energy density, due to no free electrolyte

### Benefits

High performance	Long life
<ul style="list-style-type: none"> <li>- Excellent high rate discharge</li> <li>- Powerful cycle performance by high density active material</li> </ul>	<ul style="list-style-type: none"> <li>- Full Frame Stamped Grid with Ca-Sn alloy</li> <li>- Electrolyte density is stable</li> <li>- 2 times greater cycling ability over flooded moderate discharge levels</li> </ul>

※ Application: Marine & RV (Dual Purpose-Starting & Deep Cycle)



### AGM for Marine & RV



GROUP NO.	Type No.	CCA (0°F/-18°C) (SAE)	CA (32°F/0°C) (SAE)	RC (Min)	C20 (AH)	Dimension(mm)				Layout	Terminal	Hold-down	
						L	W	H	TH				
BCI	24	AGM M24	750	900	140	75	257	172	200	220	FIG.1	MARINE TWIN	B1
	24R	AGM M24R	750	900	140	75	257	172	200	220	FIG.2	MARINE TWIN	B1
	31	AGM M31	800	960	180	90	330	172	218	242	FIG.3	STUD	-



GROUP NO.	Type No.	CCA (EN)(A)	C20 (AH)	Dimension(mm)				Layout	Terminal	Hold-down	
				L	W	H	TH				
DIN	L3	AGM L3	760	70	277	174	190	190	FIG. 2	STANDARD	B13
	L4	AGM L4	800	80	314	174	190	190	FIG. 2	STANDARD	B13
	L5	AGM L5	850	95	352	174	190	190	FIG. 2	STANDARD	B13

# Batteries for Marine & RV

## Characteristics

### The points of each Series

		AGM	Sealed Maintenance Free		
		Marine & RV AGM	XDC	DC	XV
Service		Deep Cycling & Starting (Semi-Traction)	Deep Cycling & Starting (Semi-Traction)	Starting+ Cycling	Starting+ Cycling
Grid	Positive	Pos. : X-Frame	Pos. : X-Frame	Pos. : X-Frame	Pos. : X-Frame
	Negative	Neg. : X-Frame	Neg. : X-Frame	Neg. : Expanded	Neg. : Expanded
Active Material		High density Active Material	High density Active Material	High density Active Material	Starting optimized Active Material
Separator		Absorbent Glass Mat	Low resistance Envelope Separator with Glass Mat	Low resistance Envelope Separator	Low resistance Envelope Separator
Common Characteristic		Handle, Maintenance Free, Sealed Cover, Special Tissue (MF: Magic eye Indicator)			

### The best choice of each Battery Rating Criteria

Battery Rating Criteria	AGM	XDC	DC	XV
Starting Service Capability	★★★★★	★★	★★★★	★★★★
Dual Purpose Service Capability	★★★★★	★★	★★★★	—
Deep Cycle Service Capability	★★★★★	★★★★	★	—
Floating Service Capability	★★★★★	★★★★	★★	★
Maintenance Free	★★★★★	★★★★	★★★★	★★★★
Storage Ability	★★★★★	★★★★	★★★★	★★★★

Rating Scale : ★-Good   ★★-Very Good   ★★★-Excellent   ★★★★-Best

### Power Usage Comparison

Power Usage		Marine & RV AGM	XDC	DC	XV
Starting	Trolling/Stand-By				
Moderate	None	✓		✓	✓
Moderate	Moderate	✓	✓	✓	
Moderate	Heavy	✓	✓		
Heavy	None	✓		✓	
Heavy	Moderate	✓	✓	✓	✓
Heavy	Heavy	✓			



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