

# MUTLU®

## WE ADD VALUE TO LIFE

At Mutlu Battery, our aim is to be the most innovative and the best in class as a result of the reliability that we have built on with our experience of over 70 years and solid foundations. We work constantly to be the number one in terms of reliability, expertise and quality; and to add more value into all of our products for all of our customers as a global player based in Turkey.

With our services and products and our customer focused concept carried through effective sales and distribution network, Mutlu Battery is internationally recognised as a leading company in energy storage solutions.

MUTLU®

[www.mutlu.com.tr](https://www.mutlu.com.tr)

**MIB**  
Mutlu International Battery

M108.2016.00

## Leisure

Leisure and Alternative  
Energy Batteries



# new design new technology



"M" Quality is a "High Quality" mark defining the products manufactured in ISO/TS 16949 certified production plants where Mutlu Battery employs different production technologies. Maintaining of these high quality standards in product design and technologies, Mutlu Battery maintains its position as a preferred supplier to automotive manufacturers (OEMs).

Each product carrying the "M" Quality mark is the ideal solution for you and your vehicle.



SFB  
EFB  
AGM



SFB



SFB  
MARINE

EFB  
FULL ENERGY

GEL

This range is exclusively designed for special purposes of marine, solar power systems, camper vans, electric vehicles, golf carts, alarm and security systems, UPS and disabled chairs. Mutlu leisure and alternative power batteries generate power for vehicles and systems which make the life easier and they ultimately add value to life.





# SFB

Areas Of Application



## MARINE

### Superior Flooded Battery

SFB Series batteries are developed for changing needs of water transportation vehicles. Marine group batteries are equipped with spill-proof technology and have central degassing system and flash arrestor. These maintenance free batteries consist of custom design silver additive grids and a special active material to maintain longer cycle life and higher cost saving. Minimum discharge feature delivers maximum shelf life and correspond to seasonal stand-by periods.

### Superior Technical Features



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for **SFB** marine batteries



Advanced active material developed for **SFB** marine batteries



More vibration resistant



Spill proof electrolyte system up to 55° tilt angle



Sealed safe lid technology



Maintenance-free product technology



Nearly **100%** recycling capability of all products make MUTLU environmental friendly and sustainable



QR and barcode system enabling tracking of products



Higher performance under severe climate and working conditions compared to standard batteries

**SUPERIOR**  
fully framed

\* Fully sealed in certain type of batteries.





**SFB**  
Superior Flooded Battery  
technology

# MARINE



Patented newly designed,  
ergonomic handle and  
protective lid

Post

Terminal

Reinforced  
lead connection



Magic eye  
indicating battery  
state of charge

650A (SAE)  
600A (EN)

Negative Grid

Negative Plate

Positive Grid

Positive Plate

Fiber-glass Separator

Envelope Separator

Enveloped Plate

Element Assembly

Flame arrestor

Exclusively  
designed inside  
lid labyrinth  
structure



# EFB

Areas Of  
Application



## FULL ENERGY

### Enhanced Flooded Battery

Full energy and solar batteries are critical power sources for applications requiring longer operation periods. With reinforced interior design and high charging levels, Mutlu EFB batteries are designed for longer cycle life for cleaning machines, electric vehicles, alarm and security systems, solar power systems, disabled chairs, elevators, pallet lifting equipment, golf carts, camper vans and UPS. Up to 50% deep discharge in applications requiring higher power, EFB batteries for marine applications do not require maintenance due to lower water loss levels.



### Superior Technical Features



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for EFB batteries



Advanced active material developed for EFB batteries



More vibration resistant



Spill proof electrolyte system up to 55° tilt angle



Maintenance-free product technology



QR and barcode system enabling tracking of products



Nearly 100% recycling capability of all products make MUTLU environmental friendly and sustainable



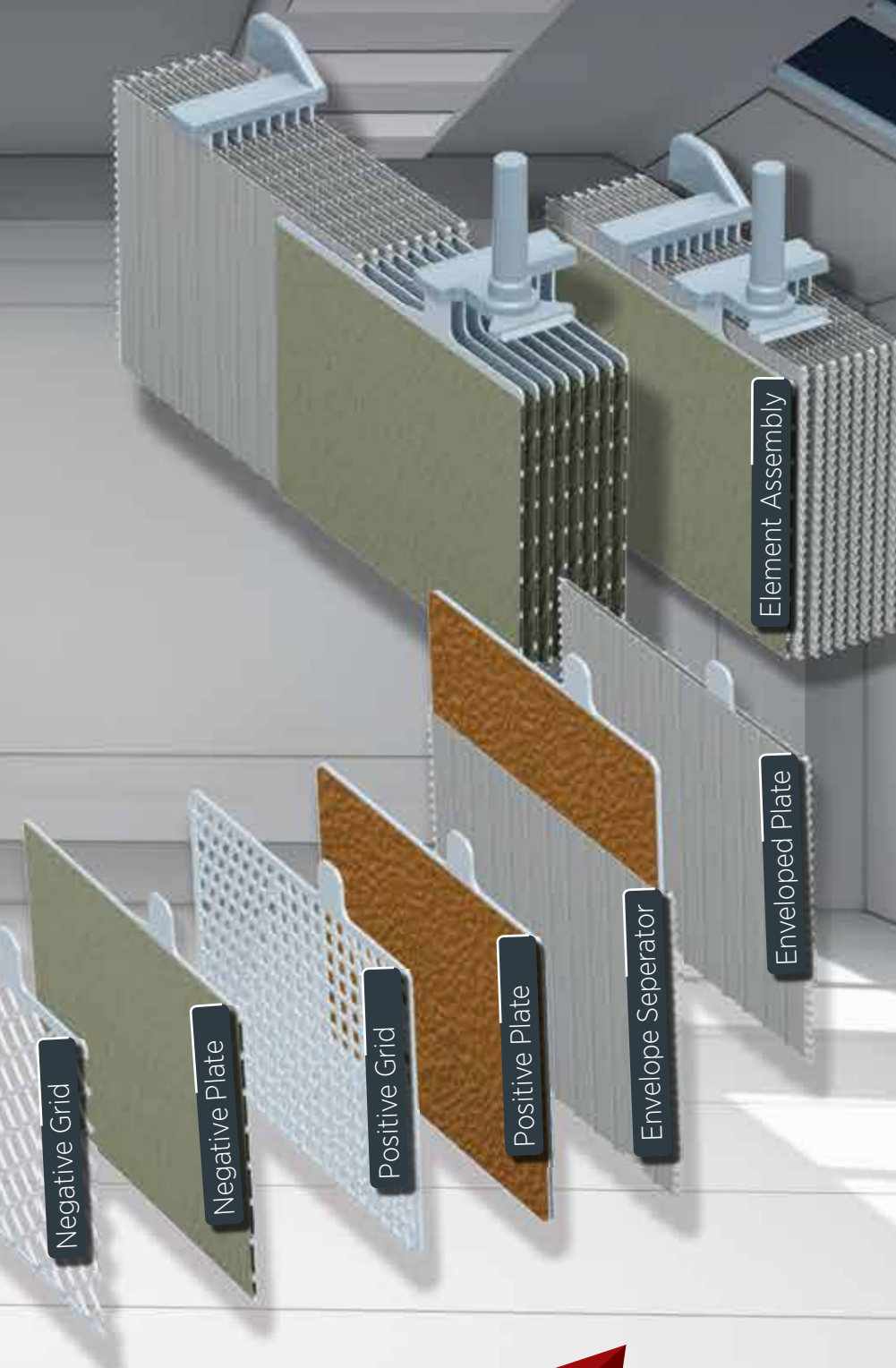
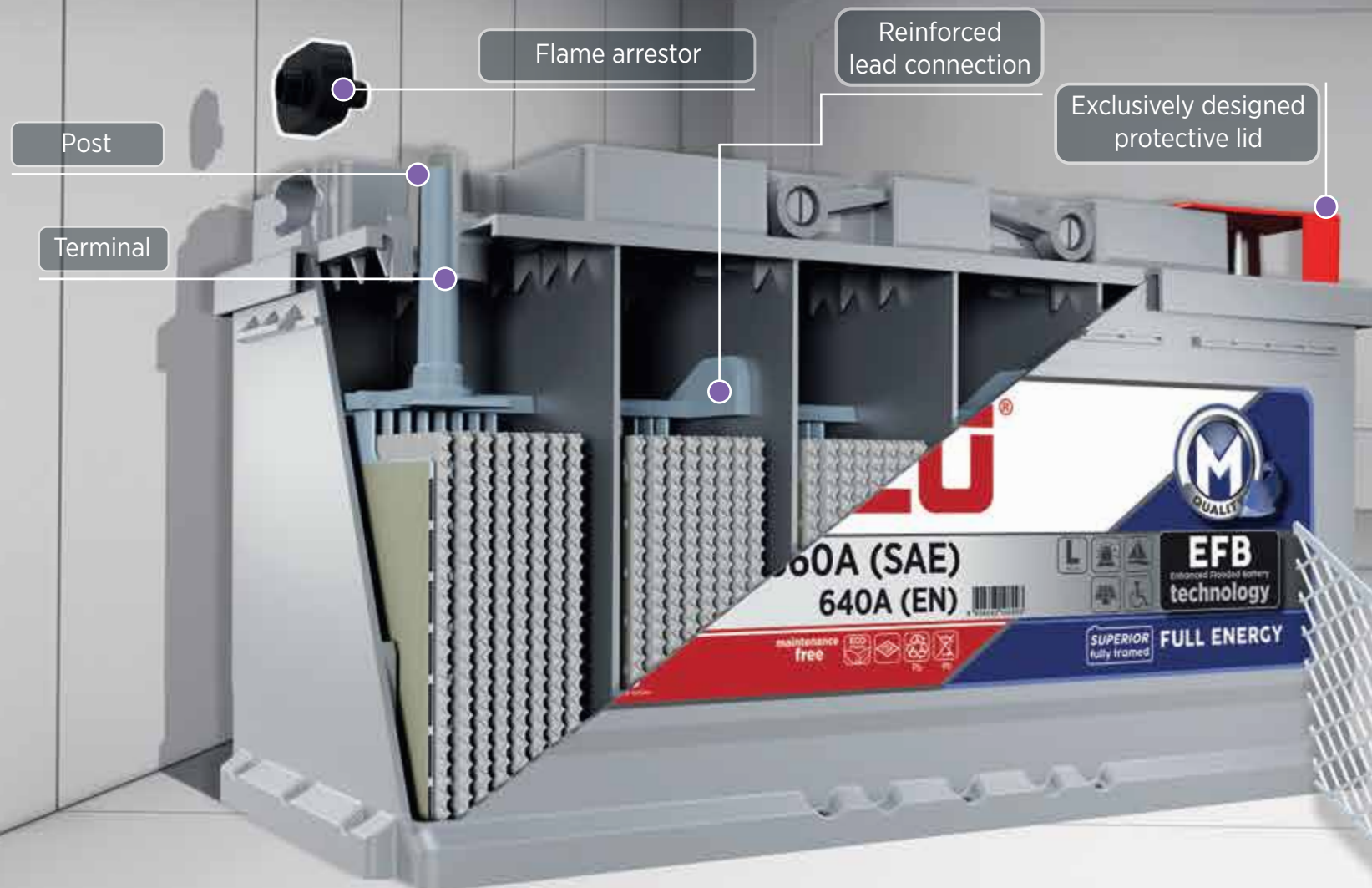
Higher performance under severe climate and working conditions compared to standard batteries





**EFB**  
Enhanced Flooded Battery  
**technology**

# FULL ENERGY





# GEL

Areas Of  
Application



Mutlu Valf Regulated Lead Acid (VRLA) batteries contain gel electrolytes which are accepted to be the cutting edge lead acid battery technology. As Gel batteries reprocess almost 100% of the gas generated during operation and this feature allows indoor area usage and creates more environmental friendly batteries. These batteries empower your fleet with their high performance while reducing your costs thanks to their longer life cycle. With minimum discharge feature, they enable a longer shelf life and are suitable for seasonal stand-by periods.

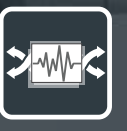
## Superior Technical Features



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for **GEL** batteries



Advanced active material developed for **GEL** batteries



More vibration resistant



Spill proof electrolyte system up to 55° tilt angle



Exclusively designed valve system with pressure control (VRLA)



Spill proof gel electrolytes



QR and barcode system enabling tracking of products



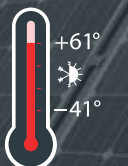
Maintenance-free product technology



Compatible with deep discharge



Nearly **100%** recycling capability of all products make MUTLU environmental friendly and sustainable



Higher performance under severe climate and working conditions compared to standard batteries

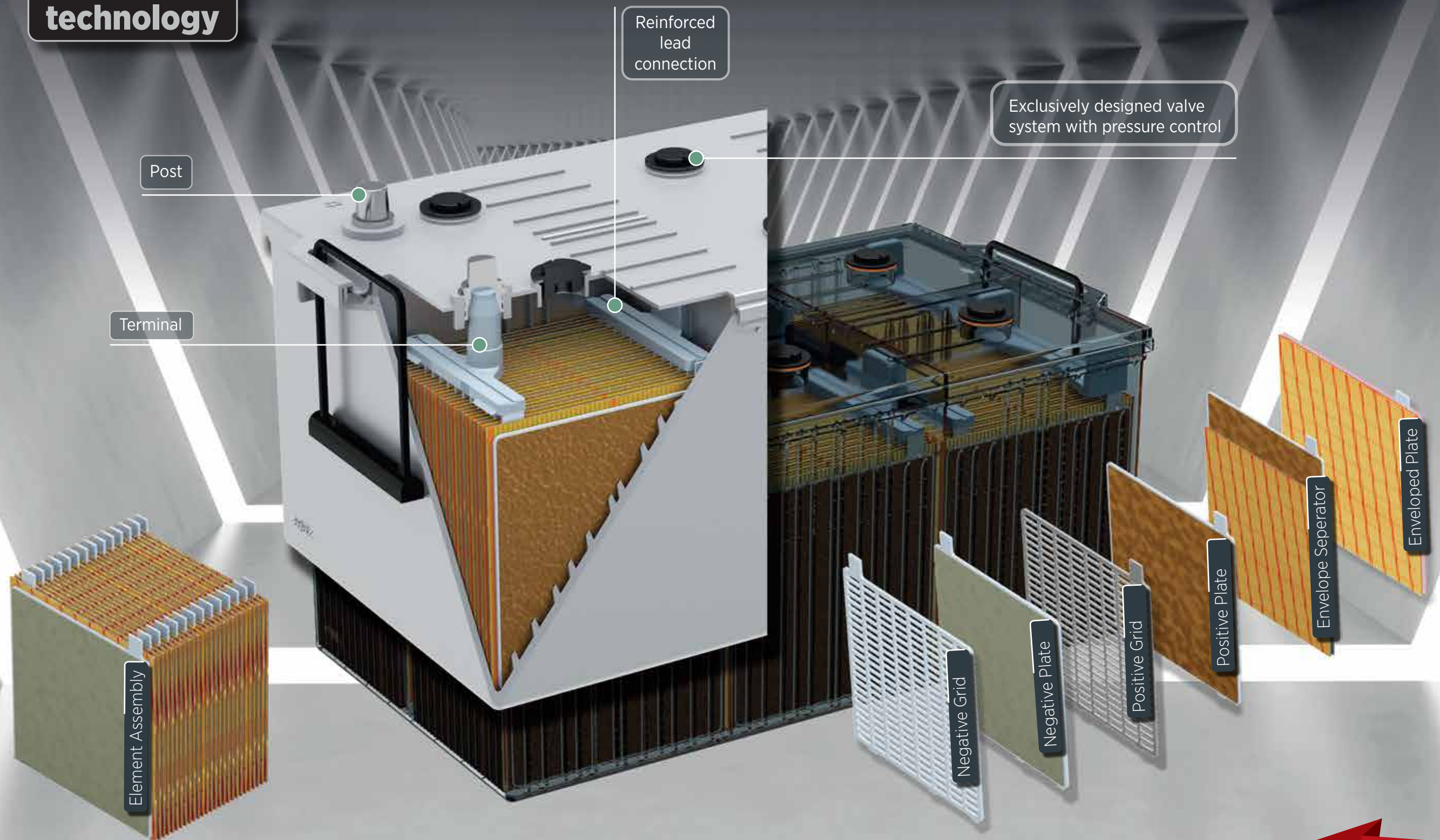
**SUPERIOR**  
fully framed





**GEL**  
technology

# GEL







## SFB Superior Flooded Battery technology



## EFB Enhanced Flooded Battery technology



## GEL technology

# Technologic Specifications

## Areas of Application



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for SFB marine batteries



Advanced active material developed for SFB marine batteries



Sealed lid technology



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for EFB Full Energy batteries



Advanced active material developed for EFB Full Energy batteries



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for GEL batteries



Advanced active material developed for GEL batteries



Exclusively designed lid with pressure controlled valve system (VRLA)



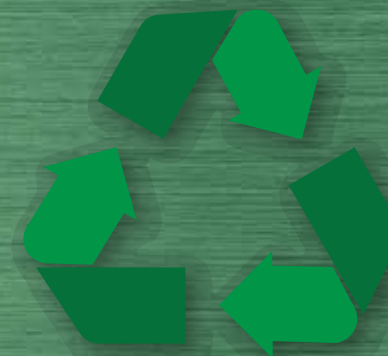
Spill proof gel electrolytes



Compatible with deep discharge

**SUPERIOR**  
fully framed

## RECYCLING ABOVE INDUSTRY STANDARDS



Recycling plant  
with an annual  
capacity of  
**40.000 tons**

Nearly **100%**  
recycling capability in  
all products.

Higher energy efficiency  
acquired by purification  
through direct refining  
technology

**TS EN ISO 14001**  
and **TS EN ISO 50001**  
certified  
environment-friendly  
manufacturing facility



Maintenance-free  
product  
technology



More vibration  
resistant



Architecture  
storing electrolytes  
up to a melting  
point of 55°



Nearly **100%** recycling  
capability of all products  
make MUTLU environmental  
friendly and sustainable



QR and barcode  
system enabling  
tracking of  
products

\* Fully sealed in certain type of batteries.



Product Dimensions List

Type			Capacity at 20 hour rate, +25 C Ah	CCA EN (A)	CCA SAE (A)	Layout	Terminal	Holddown	Overall dimensions (mm)				Weight With acid kg.
BOX	MUTLU CODE	PART NUMBER							Lenght mm	Width mm	Height Except Terminal mm	Height mm	

SFB MARINE BATTERIES

L5	ML5.90.060.A	90	600	650	0	1	B13	353	175	190	190	22,2
D3	MD3.125.090.A	125	900	950	0	1	B0	349	175	263	286	32,5
D5	MD5.180.100.A	180	1000	1050	3	1	B3	513	223	195	223	48,5
D6	MD6.200.100.B	200	1000	1050	3	1	B0	518	273	216	242	62,2



EFB FULL ENERGY BATTERIES

L1	FL1.48.030.A	48	300	320	0	1	B3	207	175	190	190	14,0
L2	FL2.60.036.A	60	360	380	0	1	B3	242	175	190	190	17,5
L3	FL3.75.048.A	75	480	500	0	1	B3	278	175	190	190	20,0
L5	FL5.95.064.A	95	640	660	0	1	B13	353	175	190	190	26,0
H3	FH3.100.064.A	100	640	660	0	1	B3	323	176	207	228	27,5
D4	FD4.135.068.A	135	680	750	3	1	B3	513	186	195	223	37,0
D5	FD.165.095.A	165	950	1000	3	1	B3	513	223	195	223	44,5
D6	FD.225.110.B	225	1100	1150	3	1	B0	518	273	215	242	61,5

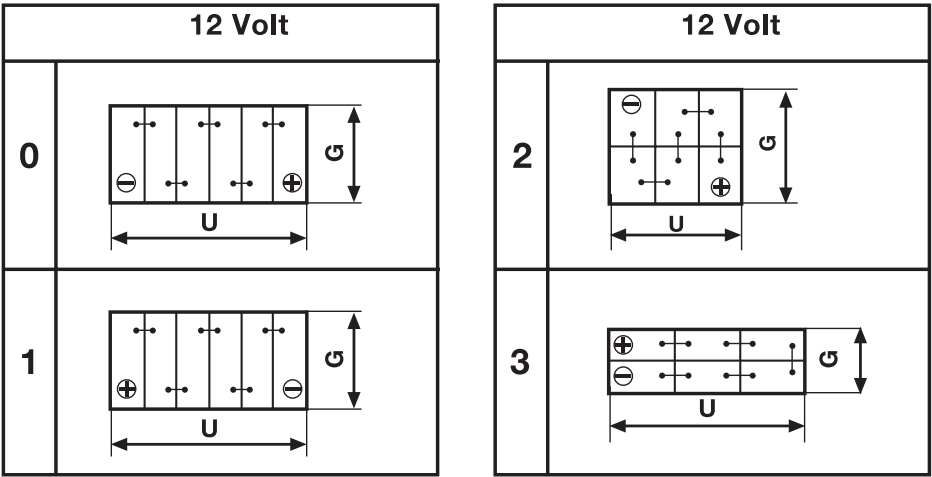


GEL BATTERIES

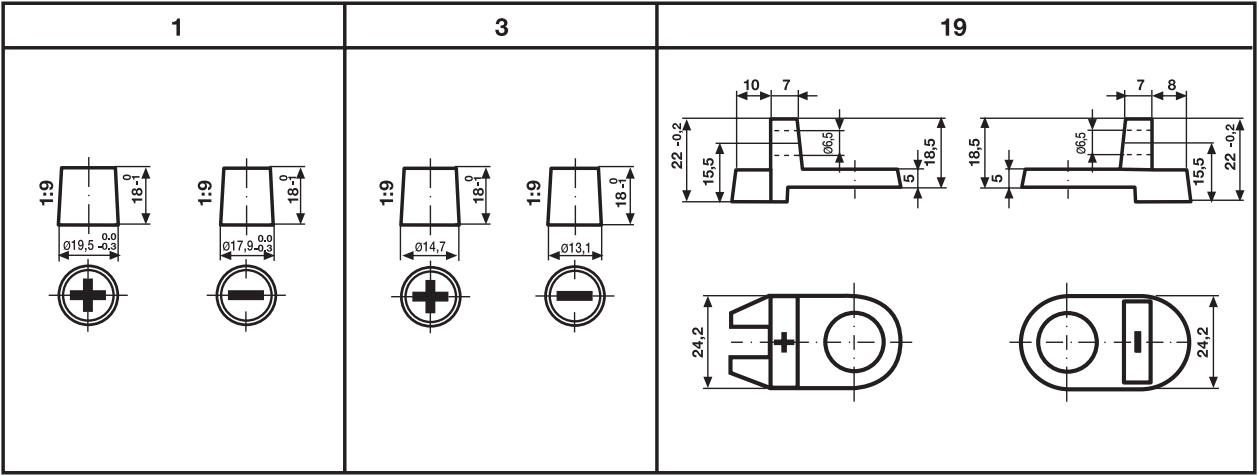
D6	GD6.210.084.B	210	840	900	3	1	B0	518	273	216	242	75,0
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Type of Installation



CONNECTION TERMINALS



HOLD DOWNS

