

# 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](http://www.mutlu.com.tr)

**MIB**  
Mutlu International Battery

14.08.2016.00



## Commercial

Heavy and Super Heavy  
Duty Batteries

# new design new technology

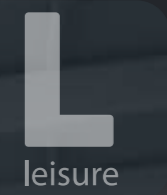


SFB  
EFB  
AGM



SFB

Mutlu SFB technology products with different capacities have been designed and are classified as Series 1, Series 2 and Series 3 to meet various energy needs depending on the equipment levels of heavy and super heavy duty vehicles.



SFB  
MARINE

EFB  
FULL ENERGY

GEL



"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

## Areas Of Application



## Superior Flooded Battery

**SERIES 1**

Batteries with flat lid design, manufactured with SFB technology are designed to meet the power needs of heavy and super heavy duty vehicles.

Under normal working conditions, Series 1 batteries offer the energy required by standard-type heavy and super heavy duty vehicles while ensuring the cost-effectiveness with its maintenance-free product features.



## Superior Technical Features



Advanced patented Ca-Ca silver alloy grid technology exclusively designed for **SFB Series 1** heavy and super heavy duty batteries



Meets V1 vibration resistance requirements according to **EN 50342**



Advanced active material designed for **SFB Series 1** heavy and super heavy duty batteries



Maintenance-free product technology



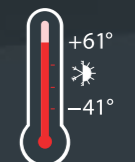
Reliable solution provider meeting technical and performance expectations of automotive manufacturers (OEMs)



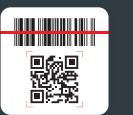
Shelf life up to **15 months** under suitable conditions



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



QR and barcode system enabling tracking of products

## Longer life cycle with SFB technology, longer shelf life with minimum discharge

Mutlu commercial and heavy commercial batteries empower your fleet with high performance in reducing your costs through longer life cycle. Minimum discharge feature enables a shelf life of up to 12 months under suitable conditions.



**SFB** **SERIES 1**  
Superior Flooded Battery  
**technology**

## Areas Of Application



Post

Special labyrinth vent plug

Special design lead connection

**SUPERIOR**  
fully framed

Internal structure consists of special designed grids, strong separators and corrosion resistant material to prevent wear. With advanced plates and special alloys, these batteries have longer life cycle and minimum discharge feature. Vibration resistance is maximized by an exclusive plate group fitting system used in the battery.

Element Assembly

Hotmelt

Enveloped Plates

Separator

Negative Plate

Negative Grid

Positive Plate

Positive Grid

# SFB

Areas Of Application



## Superior Flooded Battery

**SERIES 2**

Ideal batteries with safe kamina lid technology, Series 2 group has a central degassing system and flash arrestor. Designed to cope with the changing energy needs of heavy and super heavy duty vehicles which require a high performance battery.



## Maximum shelf life thanks to minimum discharge feature

Mutlu SFB Series 2 batteries offer longer cycle life and higher cost-effectiveness compared to standard batteries. Ensuring the most efficient cold engine start performance for commercial vehicles, they meet your needs even under the most severe climate and working conditions. With minimum discharge feature, they have a shelf life of up to 15 months under suitable conditions.

## Superior Technical Features



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for **SFB Series 2** heavy commercial batteries



Meets **V2** vibration resistance requirements according to **EN 50342**



Advanced active material designed for **SFB Series 2** heavy commercial batteries



Maintenance-free product technology



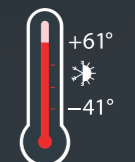
Reliable solution provider meeting technical and performance expectations of automotive manufacturers (OEMs)



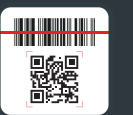
Shelf life up to **18 months** under suitable conditions



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



QR and barcode system enabling tracking of products



**SFB** SERIES 2  
Superior Flooded Battery  
**technology**

## Areas Of Application



Post

Special design  
lead connection

Special  
labyrinth  
vent plug

Flame  
arrestor

Safe kamina  
lid technology  
with central  
degassing  
system

**SUPERIOR**  
fully framed

Internal structure consists of special designed grids, strong separators and corrosion resistance alloys preventing wear. Thanks to its advanced plates and special alloys, these batteries have longer life cycle and minimum discharge specification. With the exclusive plate group fitting systems used in the battery, vibration resistance is maximized.

Hotmelt

Element Assembly

Enveloped Plates

Separator

Positive Plate

Positive Grid

Negative Plate

Negative Grid

# SFB

## Areas Of Application



## Superior Flooded Battery

**SERIES 3**

In order to provide an increased level of durability, performance and safety, Super Heavy Duty series has a safe kamina lid technology with a central degassing system and flash arrestor. This group of batteries are manufactured with SFB technology and designed to cope with the demanding energy needs of commercial and heavy commercial vehicles.



## Superior Technical Features



Advanced patented Ca-Ca, silver alloy grid technology exclusively designed for **SFB Series 3** heavy commercial batteries



Meets **V3** vibration resistance requirements according to **EN 50342**



Advanced active material designed for **SFB Series 3** heavy commercial batteries



Maintenance-free product technology



Reliable solution provider meeting technical and performance expectations of automotive manufacturers (OEMs)



Shelf life up to **18 months** under suitable conditions



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



QR and barcode system enabling tracking of products

## Maximum shelf life with minimum discharge

Mutlu SFB Series 3 offer longer cycle life and higher cost-effectiveness compared to standard 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 shelf life of up to 18 months under suitable conditions.



**SFB** SERIES 3  
Superior Flooded Battery  
**technology**

## Areas Of Application



Post

Special design  
lead connection

Special  
labyrinth  
vent plug

Flame  
arrestor

Safe kamina  
lid technology  
with central  
degassing  
system

**SUPERIOR**  
fully framed

With advanced plates and special alloys, these batteries have longer life cycle and minimum discharge feature. Internal structure is made up of special designed grids, strong separators and corrosion resistant material to prevent wear. Vibration resistance is maximized by a special plate group fitting system used in the battery.

Hotmelt

Enveloped Plates

Separator

Negative Plate

Negative Grid

Positive Plate

Positive Grid



## SFB SERIES 1

Superior Flooded Battery  
technology



## SFB SERIES 2

Superior Flooded Battery  
technology



## SFB SERIES 3

Superior Flooded Battery  
technology



Advanced patented Ca-Ca silver alloy grid technology exclusively designed for SFB Series 1 heavy duty batteries



Advanced active material designed for SFB Series 1 heavy duty batteries



Meet EN 50342 standard and V1 vibration level



Shelf life up to 15 months under suitable conditions



Advanced patented Ca-Ca silver alloy grid technology exclusively designed for SFB Series 2 heavy duty batteries



Advanced active material designed for SFB Series 2 heavy duty batteries



Meet EN 50342 standard and V2 vibration level



Shelf life up to 18 months under suitable conditions



Advanced patented Ca-Ca silver alloy grid technology exclusively designed for SFB Series 3 heavy duty batteries



Advanced active material designed for SFB Series 3 heavy duty batteries



Meet EN 50342 standard and V3 vibration level



Shelf life up to 18 months under suitable conditions



Maintenance-free product technology



Reliable solution provider meeting technical and performance expectations of automotive manufacturers (OEMs)



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



QR and barcode system enabling tracking of products

## Areas of Application



## RECYCLING ABOVE INDUSTRY STANDARDS



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

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

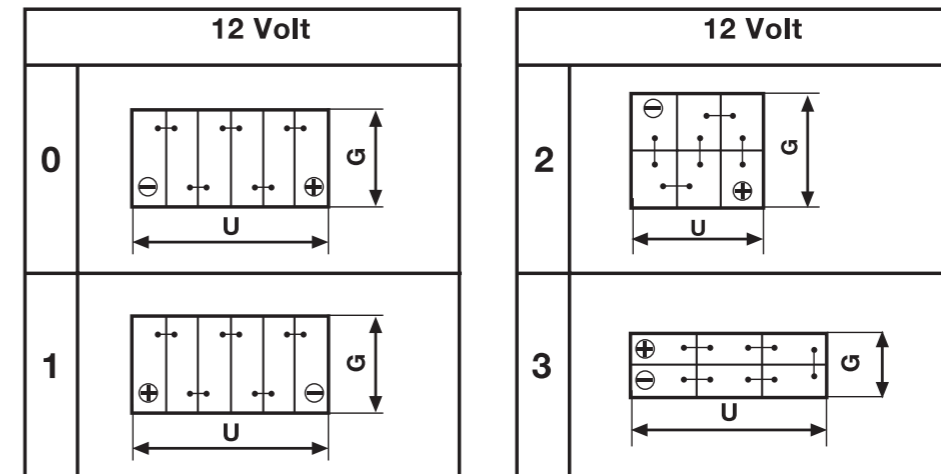
Higher energy efficiency acquired by purification through direct refining technology

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

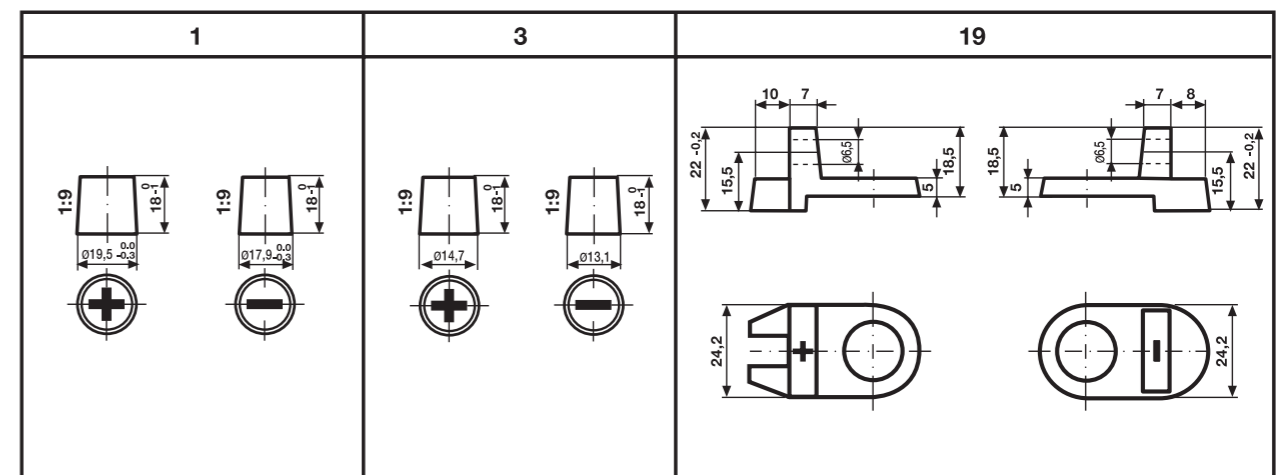
## Product Dimensions List

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 SERIES 1 HEAVY DUTY TYPE STARTER BATTERIES													
C13	C13.105.076.F	MF 60512	105	760	800	0	1	B0	347	175	207	232	25,6
	C13.105.076.G	MF 60513	105	760	800	1	1	B0					25,6
D2	D2.115.080.H	MF 60527	115	800	850	0	1	B1	344	175	212	237	27,2
D3	D3.128.090.F	MF 62810	128	900	950	0	1	B0	344	171	262	290	32,0
D4 (Type A)	1D4.120.080.A	MF 62045	120	800	850	3	1	B3	513	186	195	223	34,0
	1D4.135.095.A	MF 63530	135	950	1000	3	1	B3					35,7
	1D4.135.080.A	MF 63531	135	800	1000	3	1	B3					35,0
D5 (Type B)	1D5.150.100.A	MF 65021	150	1000	1050	3	1	B3	513	223	195	223	41,2
	1D5.165.110.A	MF 66514	165	1100	1150	3	1	B3					43,0
	1D5.165.110.B	MF 66515	165	1100	1150	3	1	B0					43,0
	1D5.180.120.A	MF 68032	180	1200	1250	3	1	B3					46,0
D6 (Type C)	1D5.190.125.A	MF 69018	190	1250	1300	3	1	B3	518	273	216	242	47,0
	1D6.200.120.B	MF 70038	200	1200	1250	3	1	B0					54,7
	1D6.220.140.B	MF 72038	220	1400	1450	3	1	B0					57,0
1D6.240.150.B	MF 74012	240	1500	1600	3	1	B0					60,0	
SFB SERIES 1 SUPER HEAVY DUTY TYPE STARTER BATTERIES													
D4 (Type A)	1SD4.145.095.A	MF 64535	145	950	1000	3	1	B3	513	186	195	223	38,0
D5 (Type B)	1SD5.190.120.A	MF 69019	190	1200	1300	3	1	B3	513	223	195	223	48,0
D6 (Type C)	1SD6.200.125.B	MF 70039	200	1250	1300	3	1	B0	518	273	216	242	55,0
	1SD6.225.130.B	MF 72538	225	1250	1300	3	1	B0					57,5
	1SD6.250.145.B	MF 75011	250	1450	1500	3	1	B0					63,0
SFB SERIES 2 HEAVY DUTY TYPE STARTER BATTERIES													
D4 (Type A)	D4.135.095.A	MF 63532	135	950	1000	3	1	B3	513	186	195	223	35,7
D5 (Type B)	D5.150.100.A	MF 65022	150	1000	1050	3	1	B3	518	223	195	223	41,2
	D5.165.110.A	MF 66517	165	1100	1150	3	1	B3					43,0
	D5.170.110.A	MF 67020	170	1100	1150	3	1	B3					43,0
	D5.180.120.A	MF 68033	180	1200	1250	3	1	B3					46,0
	D5.190.125.A	MF 69019	190	1250	1300	3	1	B3					47,0
D6 (Type C)	D6.200.120.B	MF 70039	200	1200	1250	3	1	B0	518	273	216	242	54,7
	D6.220.122.B	MF 72039	220	1400	1450	3	1	B0					57,0
	D6.240.124.B	MF 74013	240	1500	1600	3	1	B0					60,0
SFB SERIES 2 SPECIAL TYPE HEAVY DUTY VEHICLE BATTERIES													
D7	D7.100.072.C		100	720	750	2	1	B0	286	269	208	230	30,5
	D7.125.090.C		125	900	950	2	1	B0					36,5
GR31	GR31.105.076.D		105	760	800	9	1	B0	328	171	220	241	25,0
	GR31.105.076.E		105	760	800	9	8	B0					25,0
	GR31.105.090.D		105	900	950	9	1	B0					25,5
	GR31.105.090.E		105	900	950	9	8	B0					25,5
TAXI BATTERIES													
L2	TAXI.L2.65.054.A		65	540	570	0	1	B13	242	175	190	190	16,6
L3	TAXI.L3.72.057.C		72	570	600	0	1	B1	275	175	190	190	19,0
SFB SERIES 3 SUPER HEAVY DUTY TYPE STARTER BATTERIES													
D4 (Type A)	SD4.145.095.A	MF 64536	145	950	1000	3	1	B3	513	186	195	223	38,0
D5 (Type B)	SD5.190.125.A	MF 69020	190	1250	1300	3	1	B3	513	223	195	223	48,0
D6 (Type C)	SD6.200.125.B	MF 70040	200	1250	1300	3	1	B0	518	273	216	242	55,0
	SD6.225.125.B	MF 72539	225	1250	1300	3	1	B0					57,5
	SD6.250.145.B	MF 75012	250	1450	1500	3	1	B0					63,0
SPECIAL TYPE STARTER BATTERIES													
GR31	GR31.115.100.D		115	1000	1050	9	1	B0	328	171	220	241	26,5
	GR31.115.100.E		115	1000	1050	9	8	B0					26,5


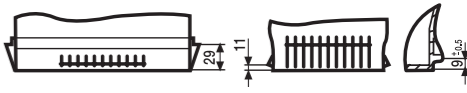
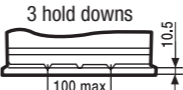
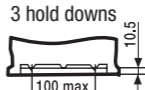
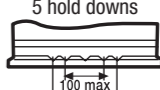
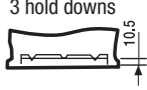
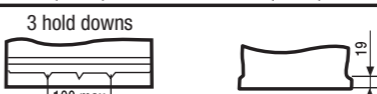
## Type of Installation



## CONNECTION TERMINALS



## HOLD DOWNS

B 00	Without bottom connections		
B 01		B 09	
B 03	 	B 13	 
B 04		B 14	