



Calcium Maintenance Free

Power innovation



ATLAS *EX* TM
THE POWER COMPANY

The power you need today

We deliver reliability with pride



Since founded in 1944, **ATLASBX** has continued to develop, to grow into a major player in the world-leading automotive batteries industry. We are always listening to customers' requirements and create value and satisfaction.

Benefits

- Long - lasting Service Life
- Reliable Starting Power
- Excellent Electrical Performance
- Unique Design for Safety

History

ESTABLISHMENT

- Fed. 1944
ISAN Ltd. established
- Sep. 1952
Company name changed to Korea Storage Battery Ltd.
- Dec. 1977
Acquired by Hankook Tire Co.,Ltd.



DEVELOPMENT

- Oct. 1979
Daejeon plant started its operation
- Mar. 1980
Developed the first MF battery in Korea
- Nov. 1985
Awarded \$10 million export prize by Korean government
- Aug. 1992
Established R&D center

Product Line-Up



HIGH GROWTH

Nov. 1994
ISO 9001 certified

Dec. 1997
Awarded \$50 million export prize
by Korean government

Jan. 1998
ISO 14001 certified

May. 1999
QS 9000 certified

Oct. 2000
Jeonju MF plant started its operation

Jan. 2001
Started commercial production and
sales of new MF series, ATLAS ROYAL

Jan. 2004
ISO/TS 16949 certified

Mar. 2004
Company name changed to ATLASBX
Co.,Ltd.

Dec. 2004
Awarded \$70 million export prize
by Korean government

Sep. 2005
Started commercial production and
sales of AGM series, ABX AGM

Nov. 2005
Awarded \$100 million export prize
by Korean government

Jan. 2006
Started commercial production and
sales of silver battery, DUPEX

Nov. 2007
Awarded \$200 million export prize
by Korean government

Nov. 2008
Awarded \$300 million export prize
by Korean government

Advantages & Differences of



1

New Calcium-Tin alloy

- Prevents grid surface from corrosion
- Reduces self discharge by chemical bonding with grains of Calcium

2

Enveloped separator for low electric resistance

- Reliable starting power
- Prevents internal short between positive and negative plates

3

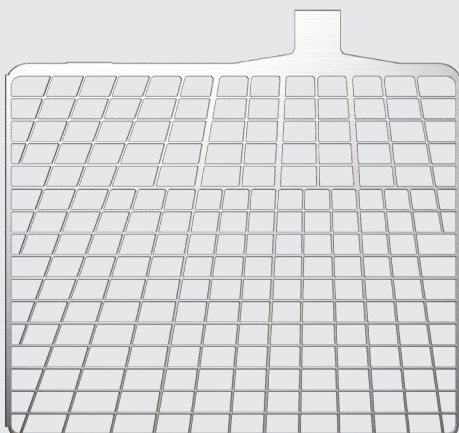
Advanced center lug technology and cast on strap

- Guarantees against outside impact and vibration
- Reliable starting power
- Increases the stability of the plates
- Long - lasting service life

Hot melt glue to resist vibration

- Ensures resistance to outside impact and vibration, and minimizes loss of active materials

New Power Innovation Pack

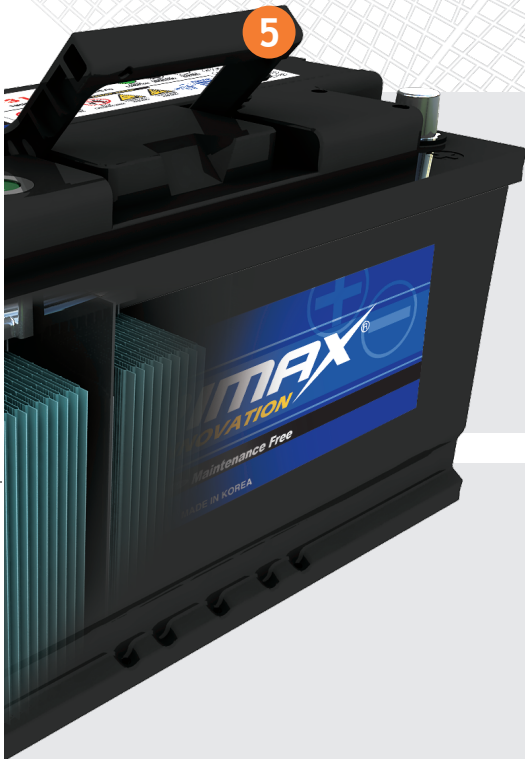
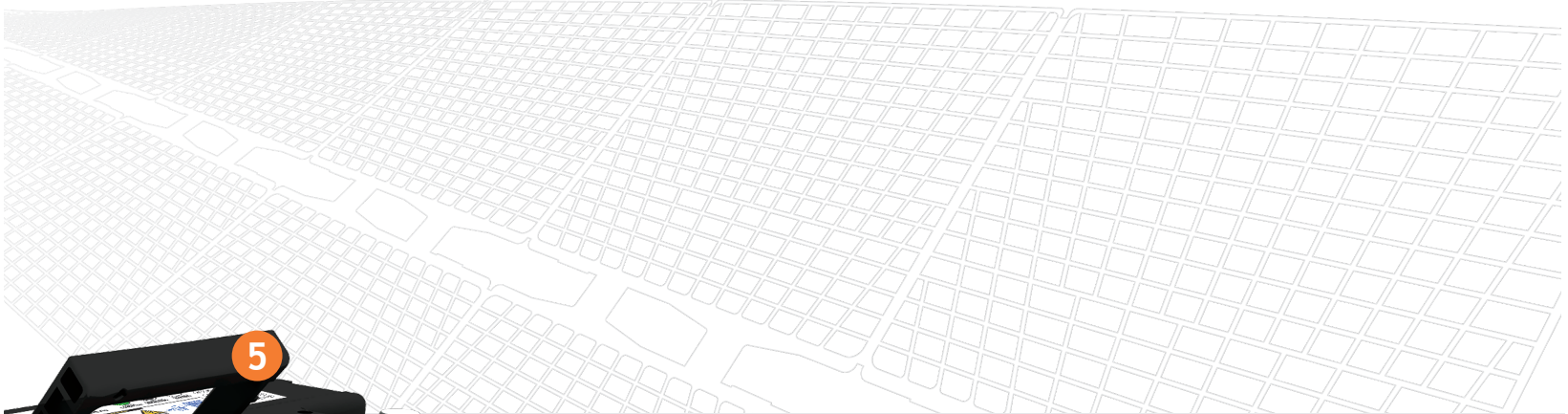


• Optimized Grid Structure

- Full Frame Grid (round edge designed)
- Stamped Grid
- Unique designed Grid for electric flow

- Prevents grid growth & short circuits
- Ensures low-resistance and strong adhesion of active materials
- Facilitates quick transmission of electrical power

Stamped Full Frame Grid



Special sealed cover structure

- Protects from acid leakage
- Minimizes gassing
- Frame arrestor prevents an inflow of outside sparks

Excellent handle design

- Provides an easy transportation and installation

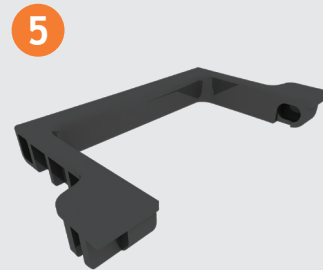
Magic eye indicator

- Easy to check charging-state

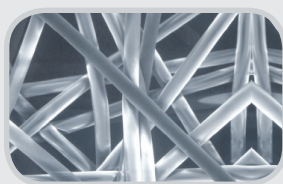
Integrated computer design and reinforced container

- Protects the battery from vibration and impact

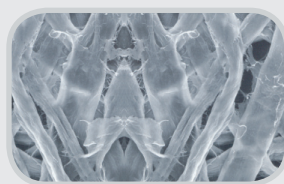
Apply to all types, global standard specifications ; JIS, DIN, BCI



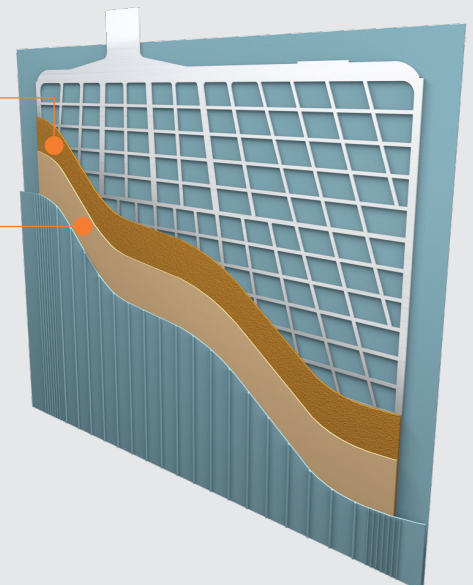
- **Upgraded version of pasted cured plate** — Ensures resistance to outside impact and vibration, and improves life-cycle
- **Ultramicro fiber & Special tissue** — Increases durability of plate by reduced aging-rate of active material



ATLAS MF Technology
New Special Tissue



Conventional Technology
Common Pulp Tissue



Technical Information

Layout

0	1	2	3	4

Terminal

	A (Standard)	B (Small)	4F	STUD	TOP POST	SIDE	DUAL FIT
Positive Terminal				 3/8"-16 THREADS			
Negative Terminal				 3/8"-16 THREADS			

Hold-Down

B1	 10.5mm on long sides only		B9	 slots on long sides, 29.0mm on short sides	
B4	3 notches 19.0mm on long sides only		B9 (22F)	 slots on long sides, 29.0mm on short sides	
B6	 29.0		B13	5 notches 10.5mm on all four sides	
B8	 13.5mm on long sides only		B14	5 notches 19.0mm on long sides, 10.5mm on short sides	

Specification

For Japanese Vehicles (JIS)



JIS Gr.No	Catalogue No.	OLD JIS NO.	CAPACITY (20HR)	CCA (SAE)	Dimension(mm)				Layout	Terminal	Hold-down
					L	W	H	TH			
B19	MF40B19L	NS40ZL	35	330	187	127	200	220	0	B	B1
	MF40B19R	NS40Z	35	330	187	127	200	220	1	B	
	MF40B19LS	NS40ZLS	35	330	187	127	200	220	0	A	
	MF40B19RS	NS40ZS	35	330	187	127	200	220	1	A	
	MF40B19FL		35	330	187	136	200	220	0	B	
	MF42B19L		38	350	187	127	200	220	0	B	
	MF42B19R		38	350	187	127	200	220	1	B	
	MF42B19LS		38	350	187	127	200	220	0	A	
	MF42B19RS		38	350	187	127	200	220	1	A	
	MF42B19FL		38	350	187	136	200	220	0	B	
	MF44B19L		40	370	187	127	200	220	0	B	
	MF44B19R		40	370	187	127	200	220	1	B	
MF44B19LS		40	370	187	127	200	220	0	A		
MF44B19RS		40	370	187	127	200	220	1	A		
MF44B19FL		40	370	187	136	200	220	0	B		
B24	MF50B24L	NS60L	45	400	234	127	200	220	0	B	B1
	MF50B24R	NS60	45	400	234	127	200	220	1	B	
	MF50B24LS	NS60LS	45	400	234	127	200	220	0	A	
	MF50B24RS	NS60S	45	400	234	127	200	220	1	A	
	MF55B24L	NX100-S6L	45	430	234	127	200	220	0	B	
	MF55B24R	NX100-S6	45	430	234	127	200	220	1	B	
	MF55B24LS	NX100-S6LS	45	430	234	127	200	220	0	A	
	MF55B24RS	NX100-S6S	45	430	234	127	200	220	1	A	
	MF60B24L		48	460	234	127	200	220	0	B	
	MF60B24R		48	460	234	127	200	220	1	B	
MF60B24LS		48	460	234	127	200	220	0	A		
MF60B24RS		48	460	234	127	200	220	1	A		
D20	MF50D20L		50	450	200	172	200	220	0	A	B1
	MF50D20R		50	450	200	172	200	220	1	A	B1
D23	MF55D23L		60	550	230	172	200	220	0	A	B1
	MF55D23R		60	550	230	172	200	220	1	A	
	MF75D23L		65	580	230	172	200	220	0	A	
	MF75D23R		65	580	230	172	200	220	1	A	
	MF85D23L		68	600	230	172	200	220	0	A	
	MF85D23R		68	600	230	172	200	220	1	A	
D26	MF48D26L	N50L	50	450	257	172	200	220	0	A	B1
	MF48D26R	N50	50	450	257	172	200	220	1	A	
	MF55D26L	N50ZL	60	550	257	172	200	220	0	A	
	MF55D26R	N50Z	60	550	257	172	200	220	1	A	
	MF75D26L	NS70L	65	580	257	172	200	220	0	A	
	MF75D26R	NS70	65	580	257	172	200	220	1	A	
	MF80D26L	NX110-5L	70	600	257	172	200	220	0	A	
	MF80D26R	NX110-5	70	600	257	172	200	220	1	A	
	MF90D26L		72	630	257	172	200	220	0	A	
	MF90D26R		72	630	257	172	200	220	1	A	
D31	MF65D31L	N70L	70	600	302	172	200	220	0	A	B1
	MF65D31R	N70	70	600	302	172	200	220	1	A	
	MF75D31L	N70ZL	75	660	302	172	200	220	0	A	
	MF75D31R	N70Z	75	660	302	172	200	220	1	A	
	MF95D31L	NX120-7L	80	670	302	172	200	220	0	A	
	MF95D31R	NX120-7	80	670	302	172	200	220	1	A	
	MF105D31L		90	750	302	172	200	220	0	A	
	MF105D31R		90	750	302	172	200	220	1	A	
	MF115D31L		95	830	302	172	200	220	0	A	
MF115D31R		95	830	302	172	200	220	1	A		
E41	MF95E41L	N100L	100	830	402	171	205	226	0	A	B1
	MF95E41R	N100	100	830	402	171	205	226	1	A	
	MF115E41L	NS120L	110	900	402	171	205	226	0	A	
	MF115E41R	NS120	110	900	402	171	205	226	1	A	
F51	MF135F51	N120	120	870	506	182	210	233	4	A	B1
G51	MF160G51	N150	150	1000	506	212	210	230	4	A	B1
H52	MF210H52	N200	200	1200	509	274	218	238	4	A	B1
	MF245H52		220	1400	509	274	218	238	4	A	
CARNIVAL	MF100L	DIESEL	100	830	325	172	200	220	0	A	B1



For European Vehicles (DIN)

DIN Gr.No	Catalogue No.	ETN NO.	CAPACITY (20HR)	CCA (EN)	Dimension(mm)				Layout	Terminal	Hold-down
					L	W	H	TH			
LB1	MF53646	536 046 033	36	330	208	174	175	175	0	A	B13
	MF54321	545 021 045	45	450	208	174	175	175	0	A	B13
	MF54322	545 022 045	45	450	208	174	175	175	1	A	B13
	MF54317	545 017 045	45	450	208	174	175	175	0	4F	B13
L1	MF54459	544 059 039	44	390	208	174	190	190	0	A	B13
	MF54464	544 064 039	44	390	208	174	190	190	1	A	B13
	MF55054	550 054 042	50	420	208	174	190	190	0	A	B13
LB2	MF54519	545 019 039	45	390	242	174	175	175	0	A	B4
	MF55046	550 046 045	50	450	242	174	175	175	0	A	B13
	MF55457	554 057 048	54	480	242	174	175	175	0	A	B13
	MF55459	554 059 048	54	480	242	174	175	175	1	A	B13
	MF55427	554 027 048	54	480	242	174	175	175	0	4F	B13
	MF56077	560 077 051	60	510	242	174	175	175	0	A	B13
L2	MF55559	555 059 048	55	480	242	174	190	190	0	A	B13
	MF55565	555 065 048	55	480	242	174	190	190	1	A	B13
	MF55531	555 031 048	55	480	242	174	190	190	0	4F	B13
	MF56219	562 019 054	62	540	242	174	190	190	0	A	B13
	MF56220	562 020 054	62	540	242	174	190	190	1	A	B13
	MF56221	562 021 054	62	540	242	174	190	190	0	4F	B13
LB3	MF55415	554 015 048	54	480	277	174	175	175	0	A	B13
	MF56318	563 018 054	63	540	277	174	175	175	0	A	B13
	MF56828	568 028 057	68	570	277	174	175	175	0	A	B13
	MF56821	568 021 057	68	570	277	174	175	175	1	A	B13
	MF56818	568 018 057	68	570	277	174	175	175	0	4F	B13
	MF57113	572 013 064	72	640	277	174	175	175	0	A	B13
L3	MF56638	566 038 054	66	540	277	174	190	190	0	A	B13
	MF56633	566 033 054	66	540	277	174	190	190	1	A	B13
	MF57219	572 019 061	72	610	277	174	190	190	1	A	B13
	MF57220	572 020 061	72	610	277	174	190	190	0	A	B13
	MF57412	574 012 068	74	680	277	174	190	190	0	A	B13
	MF57413	574 013 068	74	680	277	174	190	190	1	A	B13
LB4	MF57539	575 039 064	75	640	315	174	175	175	0	A	B13
L4	MF58043	580 043 064	80	640	315	174	190	190	0	A	B13
LB5	MF58515	585 015 072	85	720	354	174	175	175	0	A	B13
L5	MF58827	588 027 068	88	680	354	174	190	190	0	A	B13
	MF58821	588 021 068	88	680	354	174	190	190	1	A	B13
	MF59218	592 018 072	92	720	354	174	190	190	0	A	B13
	MF60038	600 038 085	100	850	354	174	190	190	0	A	B13
JIS (B19)	MF53504	535 004 033	35	330	187	136	200	220	0	B	B1
	MF53520	535 020 033	35	330	187	127	200	220	0	B	B1
	MF53522	535 022 033	35	330	187	127	200	220	1	B	B1
	MF54026	540 026 036	40	360	187	127	200	220	0	B	B1
	MF54027	540 027 036	40	360	187	127	200	220	1	B	B1
JIS (B24)	MF54523	545 023 036	45	360	234	127	200	220	0	A	B1
	MF54524	545 024 036	45	360	234	127	200	220	1	A	B1
	MF54584	545 084 036	45	360	234	127	200	220	0	B	B1
	MF54551	545 051 036	45	360	234	127	200	220	1	B	B1
JIS (D20)	MF55041	550 041 039	50	390	200	172	200	220	0	A	B1
	MF55042	550 042 039	50	390	200	172	200	220	1	A	B1
JIS (D23)	MF56068	560 068 048	60	480	230	172	200	220	0	A	B1
	MF56069	560 069 048	60	480	230	172	200	220	1	A	B1
BCI (24F)	MF56048	560 048 048	60	480	266	172	200	220	0	A	B9
	MF56049	560 049 048	60	480	266	172	200	220	1	A	B9
	MF57024	570 024 054	70	540	266	172	200	220	1	A	B9
	MF57029	570 029 054	70	540	266	172	200	220	0	A	B9
JIS (D31)	MF57512	575 012 060	75	600	302	172	200	220	0	A	B1
	MF57513	575 013 060	75	600	302	172	200	220	1	A	B1
	MF58513	585 013 068	85	680	302	172	200	220	0	A	B1
	MF58514	585 014 068	85	680	302	172	200	220	1	A	B1
BCI (G.27)	MF59518	595 018 072	95	720	302	172	200	220	0	A	B1
	MF59519	595 019 072	95	720	302	172	200	220	1	A	B1
	MF60045	600 045 076	100	760	302	172	200	220	0	A	B1
	MF60046	600 046 076	100	760	302	172	200	220	1	A	B1



For American Vehicles (BCI) - I

BCI Gr.No	Catalogue No.	CCA (SAE)	RC	Dimension(mm)				Layout	Terminal	Hold-down
				L	W	H	TH			
51	MF51-430	430	71	234	136	200	220	10	A	B1
	MF51-460	460	78	234	136	200	220	10	A	B1
51R	MF51R-430	430	71	234	136	200	220	11	A	B1
	MF51R-460	460	78	234	136	200	220	11	A	B1
21	MF21-450	450	80	200	172	200	220	10	A	B1
	MF21-500	500	88	200	172	200	220	10	A	B1
21R	MF21R-450	450	80	200	172	200	220	11	A	B1
	MF21R-500	500	88	200	172	200	220	11	A	B1
26	MF26-450	450	80	208	172	180	200	10	A	B1
	MF26-550	550	100	208	172	180	200	10	A	B1
26R	MF26R-450	450	80	208	172	180	200	11	A	B1
	MF26R-550	550	100	208	172	180	200	11	A	B1
85	MF85-500	500	85	230	172	180	200	11	A	B1
	MF85-550	550	90	230	172	180	200	11	A	B1
86(85R)	MF85R-500	500	85	230	172	180	200	10	A	B1
	MF85R-550	550	90	230	172	180	200	10	A	B1
34	MF34-550	550	100	260	172	180	200	10	A	B1
	MF34-630	630	125	260	172	180	200	10	A	B1
	MF34-670	670	130	260	172	180	200	10	A	B1
	MF34-710	710	140	260	172	180	200	10	A	B1
	MF34-750	750	155	260	172	180	200	10	A	B1
34R	MF34R-550	550	100	260	172	180	200	11	A	B1
	MF34R-630	630	125	260	172	180	200	11	A	B1
	MF34R-670	670	130	260	172	180	200	11	A	B1
	MF34R-710	710	140	260	172	180	200	11	A	B1
	MF34R-750	750	155	260	172	180	200	11	A	B1
25	MF25-550	550	100	230	172	200	220	10	A	B1
	MF25-580	580	110	230	172	200	220	10	A	B1
35	MF35-550	550	100	230	172	200	220	11	A	B1
	MF35-580	580	110	230	172	200	220	11	A	B1
24	MF24-450	450	80	257	172	200	220	10	A	B1
	MF24-500	500	90	257	172	200	220	10	A	B1
	MF24-550	550	100	257	172	200	220	10	A	B1
	MF24-600	600	113	257	172	200	220	10	A	B1
	MF24-630	630	130	257	172	200	220	10	A	B1
	MF24-680	680	140	257	172	200	220	10	A	B1
	MF24-750	750	155	257	172	200	220	10	A	B1
24R	MF24R-450	450	80	257	172	200	220	11	A	B1
	MF24R-500	500	90	257	172	200	220	11	A	B1
	MF24R-550	550	100	257	172	200	220	11	A	B1
	MF24R-600	600	113	257	172	200	220	11	A	B1
	MF24R-630	630	130	257	172	200	220	11	A	B1
	MF24R-680	680	140	257	172	200	220	11	A	B1
	MF24R-750	750	155	257	172	200	220	11	A	B1
24F	MF24F-450	450	80	266	172	200	220	11F	A	B9
	MF24F-500	500	90	266	172	200	220	11F	A	B9
	MF24F-550	550	100	266	172	200	220	11F	A	B9
	MF24F-600	600	113	266	172	200	220	11F	A	B9
	MF24F-630	630	130	266	172	200	220	11F	A	B9
	MF24F-680	680	140	266	172	200	220	11F	A	B9
	MF24F-750	750	155	266	172	200	220	11F	A	B9
27	MF27-630	630	130	302	172	200	220	10	A	B1
	MF27-670	670	140	302	172	200	220	10	A	B1
	MF27-750	750	155	302	172	200	220	10	A	B1
	MF27-810	810	180	302	172	200	220	10	A	B1
	MF27-840	840	190	302	172	200	220	10	A	B1
27R	MF27R-630	630	130	302	172	200	220	11	A	B1
	MF27R-670	670	140	302	172	200	220	11	A	B1
	MF27R-750	750	155	302	172	200	220	11	A	B1
	MF27R-810	810	180	302	172	200	220	11	A	B1
	MF27R-840	840	190	302	172	200	220	11	A	B1



For American Vehicles (BCI) - 2

BCI Gr.No	Catalogue No.	CCA (SAE)	RC	Dimension(mm)				Layout	Terminal	Hold-down
				L	W	H	TH			
27F	MF27F-630	630	130	311	172	200	220	11F	A	B9
	MF27F-670	670	140	311	172	200	220	11F	A	B9
	MF27F-750	750	155	311	172	200	220	11F	A	B9
	MF27F-810	810	180	311	172	200	220	11F	A	B9
	MF27F-840	840	190	311	172	200	220	11F	A	B9
30H	MF30H-900	830	182	325	172	200	220	10	A	B1
31	MF31-630	630	130	330	172	218	242	18	TOP	
	MF31-700	700	150	330	172	218	242	18	TOP	
	MF31-750	750	160	330	172	218	242	18	TOP	
	MF31-800	800	170	330	172	218	242	18	TOP	
	MF31-850	850	180	330	172	218	242	18	TOP	
	MF31-1000	1000	190	330	172	218	242	18	TOP	
31S	MF31S-630	630	130	330	172	218	242	18	STUD	
	MF31S-700	700	150	330	172	218	242	18	STUD	
	MF31S-750	750	160	330	172	218	242	18	STUD	
	MF31S-800	800	170	330	172	218	242	18	STUD	
	MF31S-850	850	180	330	172	218	242	18	STUD	
	MF31S-1000	1000	190	330	172	218	242	18	STUD	
90	MF90-450	450	80	242	174	175	175	24	A	B13
	MF90-500	500	90	242	174	175	175	24	A	B13
	MF90-550	550	100	242	174	175	175	24	A	B13
47	MF47-500	500	90	242	174	190	190	24	A	B13
	MF47-600	600	110	242	174	190	190	24	A	B13
91	MF91-580	580	100	277	174	175	175	24	A	B13
	MF91-630	630	110	277	174	175	175	24	A	B13
	MF91-690	690	130	277	174	175	175	24	A	B13
48	MF48-580	580	100	277	174	190	190	24	A	B13
	MF48-630	630	110	277	174	190	190	24	A	B13
	MF48-690	690	130	277	174	190	190	24	A	B13
49	MF49-750	750	160	354	174	190	190	24	A	B13
	MF49-850	850	180	354	174	190	190	24	A	B13
58	MF58-460	460	75	236	182	157	178	26	A	B8
	MF58-500	500	90	236	182	157	178	26	A	B8
	MF58-560	560	100	236	182	157	178	26	A	B8
58R	MF58R-460	460	75	236	182	157	178	19	A	B8
	MF58R-500	500	90	236	182	157	178	19	A	B8
	MF58R-560	560	100	236	182	157	178	19	A	B8
65	MF65-650	650	130	294	187	171	191	10	A	B8
	MF65-750	750	140	294	187	171	191	10	A	B8
65R	MF65R-650	650	130	294	187	171	191	11	A	B8
	MF65R-750	750	140	294	187	171	191	11	A	B8
70	MF70-400	400	71	208	179	180	180	17	SIDE	B1
	MF70-450	450	80	208	179	180	180	17	SIDE	B1
	MF70-500	500	90	208	179	180	180	17	SIDE	B1
	MF70-550	550	100	208	179	180	180	17	SIDE	B1
70DT	MF70DT-400	400	71	208	179	180	200		DT	B1
	MF70DT-450	450	80	208	179	180	200		DT	B1
	MF70DT-500	500	90	208	179	180	200		DT	B1
	MF70DT-550	550	100	208	179	180	200		DT	B1
75	MF75-500	500	90	230	179	180	180	17	SIDE	B1
	MF75-550	550	100	230	179	180	180	17	SIDE	B1
	MF75-600	600	113	230	179	180	180	17	SIDE	B1
	MF75-630	630	125	230	179	180	180	17	SIDE	B1
	MF75-650	650	130	230	179	180	180	17	SIDE	B1
75DT	MF75DT-500	500	90	230	179	180	200		DT	B1
	MF75DT-550	550	100	230	179	180	200		DT	B1
	MF75DT-600	600	113	230	179	180	200		DT	B1
	MF75DT-630	630	125	230	179	180	200		DT	B1
	MF75DT-650	650	130	230	179	180	200		DT	B1



For American Vehicles (BCI) - 3

BCI Gr.No	Catalogue No.	CCA (SAE)	RC	Dimension(mm)				Layout	Terminal	Hold-down
				L	W	H	TH			
78	MF78-550	550	100	260	179	180	180	17	SIDE	B1
	MF78-600	600	113	260	179	180	180	17	SIDE	B1
	MF78-630	630	125	260	179	180	180	17	SIDE	B1
	MF78-670	670	130	260	179	180	180	17	SIDE	B1
	MF78-710	710	140	260	179	180	180	17	SIDE	B1
	MF78-750	750	155	260	179	180	180	17	SIDE	B1
78DT	MF78DT-550	550	100	260	179	180	200		DT	B1
	MF78DT-600	600	113	260	179	180	200		DT	B1
	MF78DT-630	630	125	260	179	180	200		DT	B1
	MF78DT-670	670	130	260	179	180	200		DT	B1
	MF78DT-710	710	140	260	179	180	200		DT	B1
	MF78DT-750	750	155	260	179	180	200		DT	B1
4D	MF4D-1000	1000	300	506	212	210	230	8	A	
8D	MF8D-1200	1200	400	509	274	218	238	8	A	
	MF8D-1400	1400	460	509	274	218	238	8	A	
MINIFIT	MF MINIFIT R	400	65	243	127	180	200		A	B6
	MF MINIFIT L	400	65	243	127	180	200		A	B6
22F	MF22F-450	450	75	240	172	180	205	11F	DUAL FIT	B9
	MF22F-500	500	90	240	172	180	205	11F	DUAL FIT	B9
	MF22F-550	550	95	240	172	180	205	11F	DUAL FIT	B9
94R	MF94R-680	680	140	315	174	190	190	24	A	B13
92	MF92-650	650	125	315	174	175	175	24	A	B13
93	MF93-800	800	140	354	174	175	175	24	A	B13

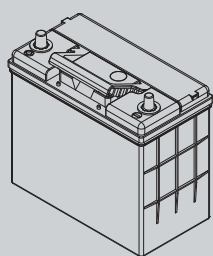
• DT = DUAL TERMINAL

For BCI cell Layout

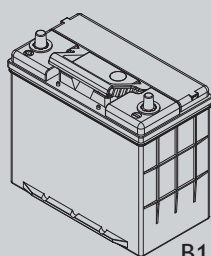
8		10	
11		11F	
17		18	
19		24	
26			

Dimension & Drawing

Drawing No.	JIS	DIN	BCI	Dimension(mm)			
				L	W	H	T
Drawing 1	B19	53520		187	127	200	220
	B24	54523	51	234	127	200	220
Drawing 2	D20	55041	21	200	172	200	220
	D23	56068	25	230	172	200	220
	D26		24	257	172	200	220
	D31	59518	27	302	172	200	220
			26	208	172	180	200
			34	260	172	180	200
Drawing 3		56048	24F	266	172	200	220
			27F	311	172	200	220
Drawing 4 (Side Terminal)			70	208	179	180	180
			75	230	179	180	180
			78	260	179	180	180
Drawing 5 (Dual Terminal)			70DT	208	179	180	200
			75DT	230	179	180	200
			78DT	260	179	180	200
Drawing 6 (STUD / TOP POST)			31S	330	172	218	242
			31	330	172	218	242

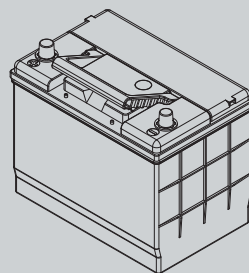


Drawing 1

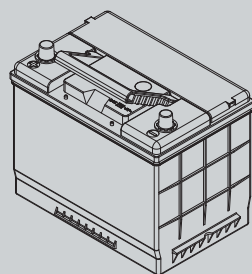


B1

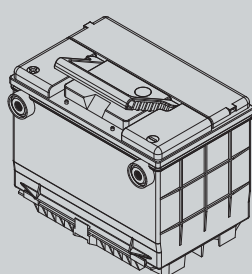
Drawing 2



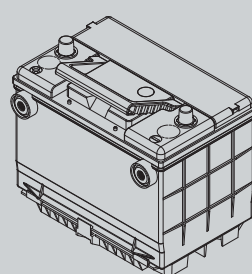
B1



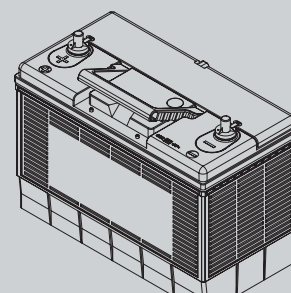
Drawing 3



Drawing 4



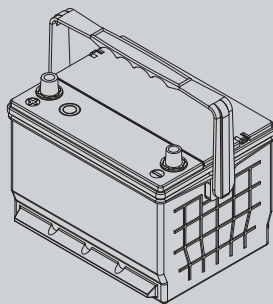
Drawing 5



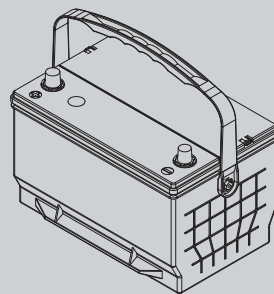
Drawing 6

Drawing No.	JIS	DIN	BCI	Dimension(mm)			
				L	W	H	T
Drawing 7			58	236	182	157	178
Drawing 8			65	294	187	171	191
Drawing 9		LB1		208	174	175	175
		L1		208	174	190	190
		LB2	90	242	174	175	175
		L2	47	242	174	190	190
Drawing 10		LB3	91	277	174	175	175
		L3	48	277	174	190	190
		LB4	92	315	174	175	175
		L4	94R	315	174	190	190
		LB5	93	354	174	175	175
		L5	49	354	174	190	190
Drawing 11	E41			402	171	205	226
Drawing 12	F51			506	182	210	233
	G51		4D	506	212	210	230
	H52		8D	509	274	218	238

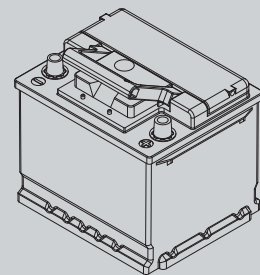
- This drawing shows only dimension information.
- For more detailed information about layout, terminal and hold-down, please refer to JIS, DIN, BCI specifications.



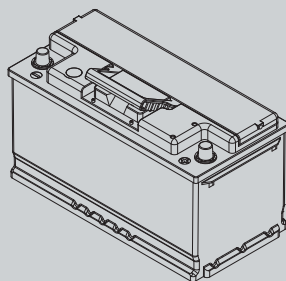
Drawing 7



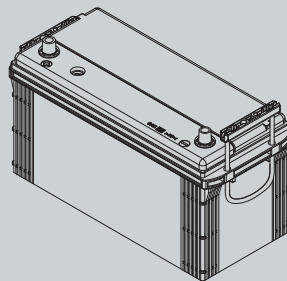
Drawing 8



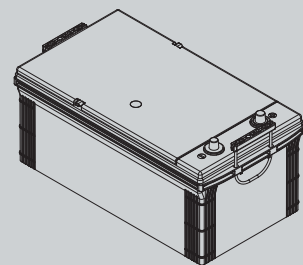
Drawing 9



Drawing 10



Drawing 11



Drawing 12

How to Handle Battery

PRECAUTION

If treated with care and taking the proper precautions, lead acid batteries can be handled safely with minimum risk. However, lead acid batteries contain sulfuric acid which is both poisonous and corrosive. This makes them potentially hazardous and can cause serious injury when standard handling procedures and safety measures are not respected.

SAFETY

- Always wear acid resistant clothing, protective goggles, PVC gloves and rubber boots.
- Avoid smoking, sparks and flames near operating or charging lead acid batteries.
- Keep metal objects away from terminals.
- Batteries are heavy. Lift carefully and do not place on unstable surfaces.
- Keep away from children.

EMERGENCY ACTION

- Splashes in eyes : wash out the eye with plenty of water for at least 15 minutes.
- Splashes on skin : Remove contaminated clothing carefully and wash the affected skin areas with plenty of water.
- Swallowed : Drink copious amounts of milk of magnesia, water or milk. Do not induce vomiting.

STORAGE

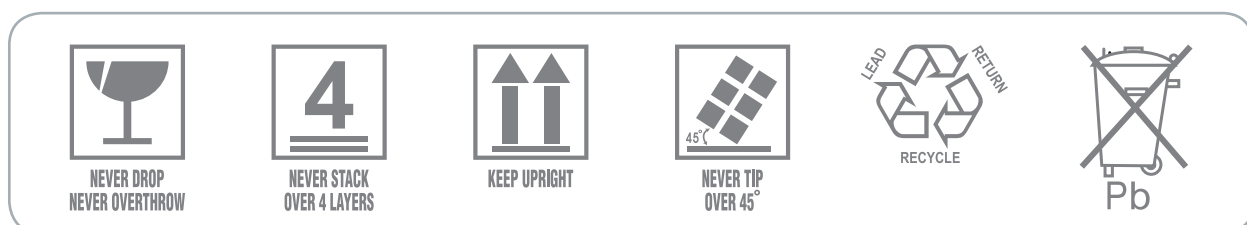
- Keep batteries upright
- Don't be exposed direct to the sun.
- Keep batteries clean and always store in a cool, dry place.
- Never stack over 4 layers.
- Never drop, never overthrow.
- In all cases, (First In, First Out) storage procedure should be applied.

INSTALLATION

- Check that vehicle's engine is turned off.
- Remove the negative terminal connection of old battery
- Remove the positive terminal connection and then, remove the hole-down bracket or clamp.
- Replace old battery to new battery and fix the new one in the tray.
- Prior to replace new one, inspect the tray for corrosion. Clean battery holder, and battery terminals using a wire brush if necessary.
- Connect the positive terminal.
- Connect the negative terminal. The negative terminal should always be replaced last.

DISPOSAL

- Batteries must NEVER be disposed of in household waste.
- Recyclable material
- Do not throw away



BATTERY TESTING PROCEDURES

A. VISUAL CHECK

- A 1. Check the Container , Cover and terminals
When physical damage is present, replace the battery.
- A 2. Check the Indicator (If battery have the Indicator)
Always look right down when viewing the Indicator and lightly tap the Indicator on the battery to dislodge any air bubbles.



B. VOLTAGE CHECK

- If OCV is below 12.4V, recharge the battery immediately.

C. DISCHARGE TEST(LOAD TEST)

- Connect the battery tester to battery terminals.
- measure the temperature of the battery around
- Set the battery tester ampere values for ½ of the CCA rating
- Apply the load for 15 seconds and read the voltage when this time is over.
- Compare measured values with the values in the table. If values is outside in TABLE.2, recharge and test again. If the battery fails the load test twice, then replace the battery.

Some times, electronic testers such as MIDTRONICS, SNAP-ON and etc. are used instead of load tester.

Electronic testers are only suitable for batteries that have been in use for a certain time. They cannot rate the performance of new or unused batteries.

For this reason, ATLASBX recommends the test defined in global standards to confirm rated specifications.

BATTERY CHARGE

If the battery is below 12.4V or fails to pass the load test, battery must be recharged as soon as possible to prevent lead sulfation. During charge, if the battery sprays electrolyte through the vent holes or gets hot (over 52°C), the charge must be stopped for a time to allow the battery to cool.

CONSTANT CURRENT CHARGE

General guidelines for constant-current-charge are given in Table 3.

The table summarizes approximate amperes and hours in need of charge according to 20Hr-rate capacity and OCV.

CONSTANT VOLTAGE CHARGE

Another method is to charge a battery at a specified voltage(14.4-16V). At the beginning of charge, a high rate current flows into the battery and as battery is charged the current is getting reduced. Generally this method needs more time than the constant-current-charge, but overcharge risk is less.

END OF CHARGE

If a battery has been properly charged, voltage output across battery terminals on charge can be maintained at constant level for 2 hours.

TABLE1. STATE OF CHARGE

Approximate State of Charge	OCV
100%	12.75
75%	12.40
50%	12.20
25%	12.00
Discharged	11.90

FOR REFERENCE ONLY

TABLE2. LOAD TEST

Minimum Voltage	Temperature
9.6V	21°C & above
9.4V	10°C
9.1V	-1°C
8.9V	-7°C
8.5V	-18°C

TABLE3. CONSTANT CURRENT CHARGE CONDITION

OCV	31-40AH	41-50AH	51-60AH	61-70AH	71-80AH	81-90AH	91-100AH
12.4-12.49	4X3	5X3	6X3	7X3	8X3	9X3	10X3
12.3-12.39	4X5	5X5	6X5	7X5	8X5	9X5	10X5
12.2-12.29	4X7	5X7	6X7	7X7	8X7	9X7	10X7
12.1-12.19	4X8	5X8	6X8	7X8	8X8	9X8	10X8
12.0-12.09	4X10	5X10	6X10	7X10	8X10	9X10	10X10
BELOW 11.99	4X13	5X13	6X13	7X13	8X13	9X13	10X13

- 4X3 means 4 ampere and 3 hours.

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