

	Units	
Type of Cell		5TBS550
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv Initial Rated	AH AH	550 550
End of Life	AH	440
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	280.50
2 hour	1.70	353.10
3 hour	1 75	410.85
4 hour	1.76	435.60
F hour	1.70	435.00
S hour	1.77	471.90
	1.77	492.80
7 nour	1.78	509.85
8 hour	1.78	522.50
9 hour	1.80	538.45
10 Hour	1.80	550.00
Maximum momentary current for 1 min till 1.60 e.c.v		990
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.43
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	82.5
ii) Voltage	V	2.23 Vpc
b) Boost charging		·
i) Starting Current	А	66
ii) Finishing current	А	33
iii) Voltage	V	2.75
Trickle Charging Rate		
I) Minimum	mA	550
ii) Maximum	mA	2200
Equalising charge		
a) Voltage	V	2.3
b) Current	A	27.5
c) Duration	Hrs	6
d) Interval between succesive equalising charge	Months	3
a, and the betteon successive equalising energy	Montho	3
Recommended Specific gravity at 27 deg C		
Recommended opeome gravity at 27 deg o		
a) for first filling		1.220 +/- 0.005
a) for first filling b) at full charge		1.220 +/- 0.005 1.240 +/- 0.005



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H	mm	145 x 206 x 721
(tolerance of +/- 2 mm in each case) Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	153
Quantity of Electrolyte per Cell	litres	12.2
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
without acid with acid	kg kg	31 45.9
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		5
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		6
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	32
Clearance between top of the plates and top of container	mm	129
Whether explosion vents are offerred		YES

Type of Vent and Filling Plugs



Container		
Thickness of Container	mm	6
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	17.6
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	
Type of Cell		6TBS600
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv		
Initial	AH	600
Rated	AH	600
End of Life	AH	480
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
-	E.C.V.	Ah output
1 hour	1.67	306.00
2 hour	1.70	385.20
3 hour	1.75	448.20
4 hour	1.76	475.20
5 hour	1.77	514.80
6 hour	1.77	537.60
7 hour	1.78	556.20
8 hour	1.78	570.00
9 hour 10 Hour	1.80	587.40
10 Hour	1.00	000.00
Maximum momentary current for 1 min till 1.60 e.c.v		1080
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.41
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	90
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	72
ii) Finishing current	A	36
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	600
ii) Maximum	mA	2400
Faualising charge		
a) Voltage	V	2.3
b) Current	Å	30
c) Duration	Hrs.	6
d) Interval between succesive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		4 000 + / 0 005
a) ioi ilist illing		1.220 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.240 +/- 0.005 1.160 - 1.120
		1 110/2 1 1.87



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H	mm	145 x 206 x 721
(tolerance of +/- 2 mm in each case) Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	153
Quantity of Electrolyte per Cell	litres	11.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Each ceil		
without acid with acid	kg kg	34.3 48.6
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		6
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate		т.0
	sqm	0.158522
No. of negative plates per cell	sqm	0.158522
No. of negative plates per cell Whether negative plates of individual cells are interchangeable	sqm	0.158522 6 Yes, but not recommended
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators	sqm	0.158522 6 Yes, but not recommended
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material	sqm	0.158522 6 Yes, but not recommended Synthetic fibre based material
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator	sqm	0.158522 6 Yes, but not recommended Synthetic fibre based material 1.7
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container	sqm mm	6 Yes, but not recommended Synthetic fibre based material 1.7 32
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container Clearance between top of the plates and top of container	sqm mm mm	0.158522 6 Yes, but not recommended Synthetic fibre based material 1.7 32 129
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container Clearance between top of the plates and top of container Whether explosion vents are offerred	sqm mm mm	1.3 0.158522 6 Yes, but not recommended Synthetic fibre based material 1.7 32 129 YES
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container Clearance between top of the plates and top of container Whether explosion vents are offerred Type of Vent and Filling Plugs	sqm mm mm	Constraints of the second
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container Clearance between top of the plates and top of container Whether explosion vents are offerred Type of Vent and Filling Plugs Container	sqm mm mm	Constraints of the second
No. of negative plates per cell Whether negative plates of individual cells are interchangeable Material and type of Separators Material Thickness of separator Clearance between bottom of the plate and the bottom of the container Clearance between top of the plates and top of container Whether explosion vents are offerred Type of Vent and Filling Plugs Container Thickness of Container	sqm mm mm mm	Constant of the second se



Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m ³	To be provided by customer
Gas generation per single cell per hour	Lit	19.2
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months

Cover



	Units	
Type of Cell		6TBS650
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv		
Initial	AH	650
Rated	AH	650
End of Life	AH	520
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	331.50
2 hour	1.70	417.30
3 hour	1.75	485.55
5 bour	1.70	514.80
6 hour	1.77	582.40
7 hour	1.78	602.55
8 hour	1.78	617.50
9 hour	1.80	636.35
10 Hour	1.80	650.00
Maximum momentary current for 1 min till 1.60 e.c.v		1170
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.4
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	97.5
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	78
ii) Finisning current iii) Voltage	A V	39 2 75
Trickle Charging Pate	·	20
i) Minimum	mΑ	650
ii) Maximum	mA	2600
Equalising charge	V	2.2
a) voltage b) Current	v A	2.3
c) Duration	Hrs	6
d) Interval between succesive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		4 000 - / 0 005
a) for fillst filling b) at full charge		1.220 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H	mm	145 x 206 x 721
(tolerance of +/- 2 mm in each case) Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	153
Quantity of Electrolyte per Cell	litres	11.5
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Each cell		
without acid with acid	kg kg	35.4 49.4
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		6
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		7
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	32
Clearance between top of the plates and top of container	mm	129
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made



Container		
Thickness of Container	mm	6
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m ³	To be provided by customer
Gas generation per single cell per hour	Lit	20.8
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	
Type of Cell		6TBS700
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv		
Initial	AH	700
Rated	AH	700
End of Life	AH	560
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge	l	
	E.C.V.	Ah output
1 hour	1.67	357.00
2 hour	1.70	449.40
3 hour	1.75	522.90
4 hour	1.76	554.40
5 hour	1.77	600.60
6 hour	1.77	627.20
7 hour	1.78	648.90
8 hour	1.78	665.00
10 Hour	1.80	700.00
Maximum momentary current for 1 min till 1.60 e.c.v		1260
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Desistance of call (ID)	milli ohmo	0.24
	milli onms	0.34
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	105
ii) Voltage	V	2.23 vpc
b) Boost charging	^	84
ii) Finishing current	A A	42
iii) Voltage	V	2.75
, C		
Trickle Charging Rate	_	
i) Minimum	mA	700
ii) Maximum	mA	2800
Equalising charge		
a) Voltage	V	2.3
b) Current	Â	35
c) Duration	Hrs.	6
d) Interval between succesive equalising charge	Months	3
Decommended One-ific mention (07, 10, 0		
a) for first filling		4 000 - / 0 005
		1 770 17 1006
b) at full charge		1.220 +/- 0.005
b) at full charge c) when Battery is discharged at 10 hours rate		1.220 +/- 0.005 1.240 +/- 0.005 1.160 - 1.130



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H (tolerance of +/- 2 mm in each case) Complete Battery	mm mm	210 X 233 X 721 Depends on the battery layout
Distance between cell centres	mm	220
	litres	21.4
	introo	2
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
without acid	kg	40.8
with acid	kg	66.9
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		6
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		7
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	33
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	3
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	22.4
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	
Type of Cell		7TBS800
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv		
Initial	AH	800
Rated	AH	800
End of Life	AH	640
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	408.00
2 hour	1.70	513.60
3 hour	1.75	597.60
4 hour	1.76	633.60
5 hour	1.77	080.40 716.90
7 hour	1.77	710.80
8 hour	1.78	741.00
9 hour	1.70	783.20
10 Hour	1.80	800.00
Maximum momentary current for 1 min till 1.60 e.c.v		1440
Expected life of bottom under permal operation 9		
maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.34
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	120
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current		
	A	96
ii) Finishing current	A A	96 48 2.75
ii) Finishing current iii) Voltage	A A V	96 48 2.75
ii) Finishing current iii) Voltage Trickle Charging Rate	A A V	96 48 2.75
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum	A A V mA	96 48 2.75 800
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum	A A V mA mA	96 48 2.75 800 3200
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge	A A V mA mA	96 48 2.75 800 3200
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage	A A V mA mA	96 48 2.75 800 3200 2.3
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current	A A V mA mA	96 48 2.75 800 3200 2.3 40
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration	A A V mA mA V A Hrs. Marita	96 48 2.75 800 3200 2.3 40 6 2
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge	A A V mA mA V A Hrs. Months	96 48 2.75 800 3200 2.3 40 6 3
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C	A A V mA mA V A Hrs. Months	96 48 2.75 800 3200 2.3 40 6 3
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling	A A V mA mA V A Hrs. Months	96 48 2.75 800 3200 2.3 40 6 3 1.220 +/- 0.005
ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling b) at full charge	A A V mA mA V A Hrs. Months	96 48 2.75 800 3200 2.3 40 6 3 1.220 +/- 0.005 1.240 +/- 0.005
 ii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling b) at full charge c) when Battery is discharged at 10 hours rate 	A A V mA MA Hrs. Months	96 48 2.75 800 3200 2.3 40 6 3 1.220 +/- 0.005 1.240 +/- 0.005 1.160 - 1.130



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H (tolerance of +/- 2 mm in each case) Complete Battery	mm mm	210 X 233 X 721 Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	20.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Each cell		
without acid with acid	kg kg	45.6 70.9
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		7
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		8
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	33
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	3
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	25.6
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours



Type of Cell	Units	8TBS900
Nominal Voltage per cell	Volte	2
Manufacturar's Name	Volta	Evide Industries Ltd
Standarda to which better is manufactured		
		15 1051
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv	лц	000
Rated	AH	900
End of Life	AH	720
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
or aborango	E.C.V.	Ah output
1 hour	1.67	459.00
2 hour	1.70	577.80
3 hour	1.75	672.30 712.90
5 hour	1.70	772.00
6 hour	1.77	806.40
7 hour	1.78	834.30
8 hour	1.78	855.00
9 hour	1.80	881.10
10 Hour	1.80	900.00
Maximum momentary current for 1 min till 1.60 e.c.v		1620
Expected life of battery under normal operation &	Veare	15 years in stand-by float application
	millionms	0.3
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	135
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	108
II) Finishing current	A	54
iii) voitage	V	2.75
Trickle Charging Rate	. =	
i) Minimum	mA	900
ii) Maximum	mA	3600
Equalising charge		
a) Voltage	V	2.3
b) Current	A	45
 C) Duration d) Interval between successive equalising charge 	HIS. Monthe	ь З
	wortuna	5
Recommended Specific gravity at 27 deg C		1 000 1/ 0 005
a) for first filling		1.220 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.240 +/- 0.005 1.160 - 1.120
of which ballery is discharged at 10 hours late		1.100 - 1.130



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H	mm	210 X 233 X 721
(tolerance of +/- 2 mm in each case) Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	20.0
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Each cell		
without acid with acid	kg kg	49.1 73.5
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		8
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		9
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	33
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Explosion proof microporou



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	3
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	28.8
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	07064000
l ype of Cell		91851000
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv		
Initial	AH	1000
Rated End of Life		1000
End of Life	АП	800
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration		
	FCV	Ab output
1 hour	1.67	510.00
2 hour	1.07	642.00
3 hour	1.75	747.00
4 hour	1.76	792.00
5 hour	1.77	858.00
6 hour	1.77	896.00
7 hour	1.77	037.00
2 hour	1.70	050.00
0 hour	1.70	950.00
	1.00	979.00
	1.00	1000.00
Maximum momentary current for 1 min till 1.60 e.c.v		1800
Expected life of battery under normal operation &		
maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.27
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging		
i) Limit current	А	150
ii) Voltage	V	2.23 VDC
b) Boost charging		·
i) Starting Current	А	120
ii) Finishing current	А	60
iii) Voltage	V	2.75
Trickle Charging Pote		
i) Minimum	m ^	1000
	mA	1000
II) Maximum	mA	4000
Equalising charge		
a) Voltage	V	2.3
b) Current	А	50
c) Duration	Hrs.	6
d) Interval between succesive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		
		1.220 +/- 0.005
b) at full charge		1.220 +/- 0.005 1 240 +/- 0 005
b) at full charge c) when Battery is discharged at 10 hours rate		1.220 +/- 0.005 1.240 +/- 0.005 1.160 - 1.130



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L */-3 x W */-3 x H */5	mm	210 X 233 X 721
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	19.4
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Fach cell		
without acid with acid	kg kg	53.3 77.0
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		9
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		10
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	33
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	32
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	
Type of Cell		10TBS1100
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv	ΔН	1100
Rated		1100
End of Life	AH	880
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	572.00
2 hour	1.70	706.20
3 hour	1.75	821.70
4 hour	1.76	871.20
5 hour	1.77	943.80
6 hour	1.77	985.60
7 hour	1.78	1019.70
8 nour	1.78	1045.00
9 hour 10 Hour	1.80	1076.90
10 11001	1.00	1100.00
Maximum momentary aurrent for 1 min till 1 60 a av		
		1980
Expected life of battery under normal operation & maintainence conditions	Years	1980 15 years in stand-by float application
Expected life of battery under normal operation & maintainence conditions	Years milli ohms	1980 15 years in stand-by float application 0.24
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge	Years milli ohms	1980 15 years in stand-by float application 0.24 <8%
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Eloat Charging	Years milli ohms	1980 15 years in stand-by float application 0.24 <8%
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current	Years milli ohms %	1980 15 years in stand-by float application 0.24 <8% 165
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage	Years milli ohms % A V	1980 15 years in stand-by float application 0.24 <8% 165 2.23 ypc
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging	Years milli ohms % A V	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current	Years milli ohms % A V A	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current ii) Finishing current	Years milli ohms % A V A A A	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Voltage	Years milli ohms % A V A A V V	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum	Years milli ohms % A V A A V A A V	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum	Years milli ohms % A V A A V A A V M A	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum	Years milli ohms % A V A A V M A V V MA MA	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge	Years milli ohms % A V A A V A A V M M M	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage	Years milli ohms % A V A A V M A V M M M	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Finishing current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current	Years milli ohms % A V A V A V mA M V M A	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration	Years milli ohms % A V A A V M M M M M M M M S Hrs.	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge	Years milli ohms % A V A A V M M M M M S Months	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6 3
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge	Years milli ohms % A V A A V MA MA MA MA Hrs. Months	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6 3
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling	Years milli ohms % A V A A V MA MA W MA Hrs. Months	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6 3 1 220 ±/- 0.005
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling b) at full charge	Years milli ohms % A V A A V MA MA W A Hrs. Months	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6 3 1.220 +/- 0.005 1.240 +/- 0.005
Expected life of battery under normal operation & maintainence conditions Internal Resistance of cell (IR) Loss in capacity in 28 days due to self discharge Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current iii) Voltage Trickle Charging Rate i) Minimum ii) Maximum Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C a) for first filling b) at full charge c) when Battery is discharged at 10 hours rate	Years milli ohms % A V A A V MA MA W A Hrs. Months	1980 15 years in stand-by float application 0.24 <8% 165 2.23 vpc 132 66 2.75 1100 4400 2.3 55 6 3 1.220 +/- 0.005 1.240 +/- 0.005



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H (tolerance of +/- 2 mm in each case) Complete Battery	mm mm	210 X 233 X 721 Depends on the battery layout
Distance between cell centres	mm	220
	litres	
	introo	
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
without acid	kg	57.4
with acid	kg	80.2
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	442
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.16
No. of positive plates per cell		10
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	435.5
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.158522
No. of negative plates per cell		11
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	33
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offerred		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m³	To be provided by customer
Gas generation per single cell per hour	Lit	35.2
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months



	Units	
Type of Cell		9TBS1200
Nominal Voltage per cell	Volts	2
Manufacturer's Name		Exide Industries Ltd.
Standards to which battery is manufactured		IS 1651
IS Nomenclature		
Number of cells in the battery bank		n
Nominal Voltage of Battery	Volts	2 X n
Declared Capacity at 27 degree C upto 1.80 ecv Initial Rated End of Life	AH AH AH	1200 1200 960
Rated Capacity at mimimum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Rated Capacity at maximum ambient temperature	Ah	As per formula: Ct=C27{1+0.0043(t-27)}
Capacity in AH at various end cell voltages and duration of discharge	I	
1 hour 2 hour 3 hour 4 hour 5 hour 6 hour 7 hour 8 hour 9 hour	E.C.V. 1.67 1.70 1.75 1.76 1.77 1.77 1.78 1.78 1.80	Ah output 612.00 770.40 896.40 950.40 1029.60 1075.20 1112.40 1140.00 1174.80
10 Hour	1.80	1200.00
Maximum momentary current for 1 min till 1.60 e.c.v		2160
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.27
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for a) Float Charging i) Limit current ii) Voltage b) Boost charging i) Starting Current ii) Finishing current iii) Voltage	A V A A V	180 2.23 vpc 144 72 2.75
Trickle Charging Rate i) Minimum ii) Maximum	mA mA	1200 4800
Equalising charge a) Voltage b) Current c) Duration d) Interval between succesive equalising charge Recommended Specific gravity at 27 deg C	V A Hrs. Months	2.3 60 6 3
a) for first filling b) at full charge		1.220 +/- 0.005 1.240 +/- 0.005



Permissible max. temperature of Electrolyte i) During Initial Charging ii) During Normal Operation	deg C deg C	50 45
Overall dimensions		
Each Cell L x W x H (tolerance of +/- 2 mm in each case) Complete Battery	mm mm	210 X 275 X 871 Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	32
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%) Fach cell		
without acid with acid	kg kg	65.5 104.5
Complete Battery without acid with acid	kg kg	n X each cell weight without acid n X each cell weight with acid
Material and type of Plates i) Positive Plates		
Material		Lead-Antimony alloy spine
Height of Positive Plate	mm	570
Thickness of Positive Plate	mm	9.3
Area of Positive Plate	sqm	0.205
No. of positive plates per cell		9
Whether positive plates of individual cells are interchangeable		Yes, but not recommended
ii) Negative Plates		
Material		Lead - Calcium alloy grid
Height of Negative Plate	mm	564
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.2053
No. of negative plates per cell		10
Whether negative plates of individual cells are interchangeable		Yes, but not recommended
Material and type of Separators		
Material		Synthetic fibre based material
Thickness of separator	mm	1.7
Clearance between bottom of the plate and the bottom of the container	mm	43
Clearance between top of the plates and top of container	mm	148
Whether explosion vents are offerred		YES

Type of Vent and Filling Plugs



Container		
Thickness of Container	mm	8
Material of Container		Transparent SAN
Cover		
Type of cover		Adhesive sealed
Material of Cover		Opaque SAN
Connections		
Material of Inter-Cell Connectors		Insulated Lead Plated Copper
Thickness of Inter-Cell Connectors	mm	5
Method of connection		Bolted
Inter-row, Inter-tier connectors and end take-offs furnished?		Yes
Material of Bolt, Nut and Washer for Inter-Cell and Cable Connections		Lead plated MS
Racks		
Racks a) Number of racks per battery b) Number of cells per rack c) Type of racks d) Material of rack e) Dimensions of the racks		Depends on the battery layout Depends on the battery layout Depends on the battery layout Steel / Teak wood Depends on the battery layout
Ventilation requirements		
Cubic content of battery rooms	m ³	To be provided by customer
Gas generation per single cell per hour	Lit	38.4
No. of air exchanges required per hour		Depends on the size of battery room
Gasification Voltage per Cell	Volt	2.36
Recommended Max. period of cell storage before the first Charge (After Installation and filling of Electrolyte)		12 - 18 hours
Recommended Storage life of Battery (Dry shelf life)		12 months