

General Technical Particulars

Type of Cell	Units	10TBS1325
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	1325
Rated	AH	1325
End of Life	AH	1060
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27} \{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27} \{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	675.75
2 hour	1.70	850.65
3 hour	1.75	989.78
4 hour	1.76	1049.40
5 hour	1.77	1136.85
6 hour	1.77	1187.20
7 hour	1.78	1228.28
8 hour	1.78	1258.75
9 hour	1.80	1297.18
10 Hour	1.80	1325.00
Maximum momentary current for 1 min till 1.60 e.c.v		2385
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.512
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	198.75
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	159
ii) Finishing current	A	79.5
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1325
ii) Maximum	mA	5300
Equalising charge		
a) Voltage	V	2.3
b) Current	A	66.25
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell $L^{+/-3} \times W^{+/-3} \times H^{+5}$	mm	210 X 275 X 871
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	29.6
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	70.1
with acid	kg	106.2
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		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	564
Thickness of Negative Plate	mm	4.5
Area of Negative Plate	sqm	0.2053
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	43
Clearance between top of the plates and top of container	mm	148
Whether explosion vents are offered		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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	42.4
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

General Technical Particulars

Type of Cell	Units	11TBS1450
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	1450
Rated	AH	1450
End of Life	AH	1160
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27} \{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27} \{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	739.50
2 hour	1.70	930.90
3 hour	1.75	1083.15
4 hour	1.76	1148.40
5 hour	1.77	1244.10
6 hour	1.77	1299.20
7 hour	1.78	1344.15
8 hour	1.78	1377.50
9 hour	1.80	1419.55
10 Hour	1.80	1450.00
Maximum momentary current for 1 min till 1.60 e.c.v		2610
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.22
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	217.5
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	174
ii) Finishing current	A	87
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1450
ii) Maximum	mA	5800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	72.5
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	210 X 275 X 871
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	28.7

Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
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Weight(+/-5%)

Each cell		
without acid	kg	77.6
with acid	kg	112.6
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		11

Whether positive plates of individual cells are interchangeable		Yes, but not recommended
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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		12

Whether negative plates of individual cells are interchangeable		Yes, but not recommended
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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 offered		YES
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Type of Vent and Filling Plugs		Explosion proof microporous ceramic made
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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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	46.4
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

General Technical Particulars

Type of Cell	Units	12TBS1500
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	1500
Rated	AH	1500
End of Life	AH	1200
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t-27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t-27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	765.00
2 hour	1.70	963.00
3 hour	1.75	1120.50
4 hour	1.76	1188.00
5 hour	1.77	1287.00
6 hour	1.77	1344.00
7 hour	1.78	1390.50
8 hour	1.78	1425.00
9 hour	1.80	1468.50
10 Hour	1.80	1500.00
Maximum momentary current for 1 min till 1.60 e.c.v		2700
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.38
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	225
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	180
ii) Finishing current	A	90
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1500
ii) Maximum	mA	6000
Equalising charge		
a) Voltage	V	2.3
b) Current	A	75
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L ^{+/-3} x W ^{+/-3} x H ⁺⁵	mm	210 X 275 X 871
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	28.1
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	81.5
with acid	kg	115.8
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		12
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		12
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 offered		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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	48
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

General Technical Particulars

Type of Cell	Units	12TBS1600
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	1600
Rated	AH	1600
End of Life	AH	1280
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t-27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t-27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	816.00
2 hour	1.70	1027.20
3 hour	1.75	1195.20
4 hour	1.76	1267.20
5 hour	1.77	1372.80
6 hour	1.77	1433.60
7 hour	1.78	1483.20
8 hour	1.78	1520.00
9 hour	1.80	1566.40
10 Hour	1.80	1600.00
Maximum momentary current for 1 min till 1.60 e.c.v		2880
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.38
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	240
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	192
ii) Finishing current	A	96
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1600
ii) Maximum	mA	6400
Equalising charge		
a) Voltage	V	2.3
b) Current	A	80
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	210 X 275 X 871
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	27.8
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	84.0
with acid	kg	117.9
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		12
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		13
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 offered		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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	51.2
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

General Technical Particulars

Type of Cell	Units	13TBS1700
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	1700
Rated	AH	1700
End of Life	AH	1360
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	867.00
2 hour	1.70	1091.40
3 hour	1.75	1269.90
4 hour	1.76	1346.40
5 hour	1.77	1458.60
6 hour	1.77	1523.20
7 hour	1.78	1575.90
8 hour	1.78	1615.00
9 hour	1.80	1664.30
10 Hour	1.80	1700.00
Maximum momentary current for 1 min till 1.60 e.c.v		3060
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.22
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	255
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	204
ii) Finishing current	A	102
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1700
ii) Maximum	mA	6800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	85
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	42.9
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	96.0
with acid	kg	148.3
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		13
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		14
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	54.4
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

General Technical Particulars

Type of Cell	Units	14TBS1850
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	1850
Rated	AH	1850
End of Life	AH	1480
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	943.50
2 hour	1.70	1187.70
3 hour	1.75	1381.95
4 hour	1.76	1465.20
5 hour	1.77	1587.30
6 hour	1.77	1657.60
7 hour	1.78	1714.95
8 hour	1.78	1757.50
9 hour	1.80	1811.15
10 Hour	1.80	1850.00
Maximum momentary current for 1 min till 1.60 e.c.v		3330
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.18
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	277.5
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	222
ii) Finishing current	A	111
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1850
ii) Maximum	mA	7400
Equalising charge		
a) Voltage	V	2.3
b) Current	A	92.5
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	42.1
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	102.0
with acid	kg	153.4
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		14
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		15
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	59.2
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

General Technical Particulars

Type of Cell	Units	15TBS1975
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	1975
Rated	AH	1975
End of Life	AH	1580
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1007.25
2 hour	1.70	1267.95
3 hour	1.75	1475.33
4 hour	1.76	1564.20
5 hour	1.77	1694.55
6 hour	1.77	1769.60
7 hour	1.78	1830.83
8 hour	1.78	1876.25
9 hour	1.80	1933.53
10 Hour	1.80	1975.00
Maximum momentary current for 1 min till 1.60 e.c.v		3555
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.36
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	296.25
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	237
ii) Finishing current	A	118.5
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1975
ii) Maximum	mA	7900
Equalising charge		
a) Voltage	V	2.3
b) Current	A	98.75
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	41.2
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	105.5
with acid	kg	155.8
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		15
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		16
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	63.2
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

General Technical Particulars

Type of Cell	Units	16TBS2000
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	2000
Rated	AH	2000
End of Life	AH	1600
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1020.00
2 hour	1.70	1284.00
3 hour	1.75	1494.00
4 hour	1.76	1584.00
5 hour	1.77	1716.00
6 hour	1.77	1792.00
7 hour	1.78	1854.00
8 hour	1.78	1900.00
9 hour	1.80	1958.00
10 Hour	1.80	2000.00
Maximum momentary current for 1 min till 1.60 e.c.v		3600
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.15
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	300
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	240
ii) Finishing current	A	120
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2000
ii) Maximum	mA	8000
Equalising charge		
a) Voltage	V	2.3
b) Current	A	100
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	40.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	107.4
with acid	kg	157.0
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		16
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		16
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	64
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

General Technical Particulars

Type of Cell	Units	16TBS2100
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	2100
Rated	AH	2100
End of Life	AH	1680
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1071.00
2 hour	1.70	1348.20
3 hour	1.75	1568.70
4 hour	1.76	1663.20
5 hour	1.77	1801.80
6 hour	1.77	1881.60
7 hour	1.78	1946.70
8 hour	1.78	1995.00
9 hour	1.80	2055.90
10 Hour	1.80	2100.00
Maximum momentary current for 1 min till 1.60 e.c.v		3780
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.15
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	315
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	252
ii) Finishing current	A	126
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2100
ii) Maximum	mA	8400
Equalising charge		
a) Voltage	V	2.3
b) Current	A	105
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	40.4
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	110.7
with acid	kg	160.0
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		16
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		17
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	67.2
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

General Technical Particulars

Type of Cell	Units	17TBS2200
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	2200
Rated	AH	2200
End of Life	AH	1760
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1122.00
2 hour	1.70	1412.40
3 hour	1.75	1643.40
4 hour	1.76	1742.40
5 hour	1.77	1887.60
6 hour	1.77	1971.20
7 hour	1.78	2039.40
8 hour	1.78	2090.00
9 hour	1.80	2153.80
10 Hour	1.80	2200.00
Maximum momentary current for 1 min till 1.60 e.c.v		3960
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.13
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	330
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	264
ii) Finishing current	A	132
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2200
ii) Maximum	mA	8800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	110
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		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	214 X 399 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	39.5
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	116.8
with acid	kg	165.0
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		17
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		18
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	42.5
Clearance between top of the plates and top of container	mm	126
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	70.4
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

General Technical Particulars

Type of Cell	Units	18TBS2400
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	2400
Rated	AH	2400
End of Life	AH	1920
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1224.00
2 hour	1.70	1540.80
3 hour	1.75	1792.80
4 hour	1.76	1900.80
5 hour	1.77	2059.20
6 hour	1.77	2150.40
7 hour	1.78	2224.80
8 hour	1.78	2280.00
9 hour	1.80	2349.60
10 Hour	1.80	2400.00
Maximum momentary current for 1 min till 1.60 e.c.v		4320
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.14
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	360
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	288
ii) Finishing current	A	144
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2400
ii) Maximum	mA	9600
Equalising charge		
a) Voltage	V	2.3
b) Current	A	120
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 487 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	50.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	131.5
with acid	kg	193.4
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		18
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		20
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	76.8
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

General Technical Particulars

Type of Cell	Units	20TBS2500
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	2500
Rated	AH	2500
End of Life	AH	2000
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1275.00
2 hour	1.70	1605.00
3 hour	1.75	1867.50
4 hour	1.76	1980.00
5 hour	1.77	2145.00
6 hour	1.77	2240.00
7 hour	1.78	2317.50
8 hour	1.78	2375.00
9 hour	1.80	2447.50
10 Hour	1.80	2500.00
Maximum momentary current for 1 min till 1.60 e.c.v		4500
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.12
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	375
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	300
ii) Finishing current	A	150
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2500
ii) Maximum	mA	10000
Equalising charge		
a) Voltage	V	2.3
b) Current	A	125
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 487 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	49.3
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	140.7
with acid	kg	200.8
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		20
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		20
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	80
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

General Technical Particulars

Type of Cell	Units	20TBS2600
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	2600
Rated	AH	2600
End of Life	AH	2080
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1326.00
2 hour	1.70	1669.20
3 hour	1.75	1942.20
4 hour	1.76	2059.20
5 hour	1.77	2230.80
6 hour	1.77	2329.60
7 hour	1.78	2410.20
8 hour	1.78	2470.00
9 hour	1.80	2545.40
10 Hour	1.80	2600.00
Maximum momentary current for 1 min till 1.60 e.c.v		4680
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.12
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	390
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	312
ii) Finishing current	A	156
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2600
ii) Maximum	mA	10400
Equalising charge		
a) Voltage	V	2.3
b) Current	A	130
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 487 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	49
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	145
with acid	kg	204.8
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		20
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		22
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	83.2
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

General Technical Particulars

Type of Cell	Units	22TBS2900
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	2900
Rated	AH	2900
End of Life	AH	2320
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1479.00
2 hour	1.70	1861.80
3 hour	1.75	2166.30
4 hour	1.76	2296.80
5 hour	1.77	2488.20
6 hour	1.77	2598.40
7 hour	1.78	2688.30
8 hour	1.78	2755.00
9 hour	1.80	2839.10
10 Hour	1.80	2900.00
Maximum momentary current for 1 min till 1.60 e.c.v		5220
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.11
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	435
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	348
ii) Finishing current	A	174
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	2900
ii) Maximum	mA	11600
Equalising charge		
a) Voltage	V	2.3
b) Current	A	145
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 576 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	60.1
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	158.5
with acid	kg	231.8
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		22
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		24
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	92.8
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

General Technical Particulars

Type of Cell	Units	24TBS3000
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	3000
Rated	AH	3000
End of Life	AH	2400
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1530.00
2 hour	1.70	1926.00
3 hour	1.75	2241.00
4 hour	1.76	2376.00
5 hour	1.77	2574.00
6 hour	1.77	2688.00
7 hour	1.78	2781.00
8 hour	1.78	2850.00
9 hour	1.80	2937.00
10 Hour	1.80	3000.00
Maximum momentary current for 1 min till 1.60 e.c.v		5400
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.1
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	450
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	360
ii) Finishing current	A	180
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	3000
ii) Maximum	mA	12000
Equalising charge		
a) Voltage	V	2.3
b) Current	A	150
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 576 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	58.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	164.9
with acid	kg	236.5
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		24
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		24
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	96
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

General Technical Particulars

Type of Cell	Units	24TBS3200
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	3200
Rated	AH	3200
End of Life	AH	2560
Rated Capacity at minimum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Rated Capacity at maximum ambient temperature	Ah	As per formula: $C_t = C_{27}\{1 + 0.0043(t - 27)\}$
Capacity in AH at various end cell voltages and duration of discharge		
	E.C.V.	Ah output
1 hour	1.67	1632.00
2 hour	1.70	2054.40
3 hour	1.75	2390.40
4 hour	1.76	2534.40
5 hour	1.77	2745.60
6 hour	1.77	2867.20
7 hour	1.78	2966.40
8 hour	1.78	3040.00
9 hour	1.80	3132.80
10 Hour	1.80	3200.00
Maximum momentary current for 1 min till 1.60 e.c.v		5760
Expected life of battery under normal operation & maintenance conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.1
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	480
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	384
ii) Finishing current	A	192
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	3200
ii) Maximum	mA	12800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	160
c) Duration	Hrs.	6
d) Interval between successive equalising charge	Months	3
Recommended Specific gravity at 27 deg C		
a) for first filling		1.220 +/- 0.005
b) at full charge		1.240 +/- 0.005
c) when Battery is discharged at 10 hours rate		1.160 - 1.130

Permissible max. temperature of Electrolyte

i) During Initial Charging	deg C	50
ii) During Normal Operation	deg C	45

Overall dimensions

Each Cell L x W x H (tolerance of +/- 2 mm in each case)	mm	212 X 576 X 847
Complete Battery	mm	Depends on the battery layout
Distance between cell centres	mm	220
Quantity of Electrolyte per Cell	litres	58.4
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1

Weight(+/-5%)

Each cell		
without acid	kg	170
with acid	kg	241.2
Complete Battery without acid	kg	n X each cell weight without acid
with acid	kg	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		24
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		26
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	125.5
Whether explosion vents are offered		YES
Type of Vent and Filling Plugs		Explosion proof microporous ceramic made

Container

Thickness of Container	mm	10
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		Depends on the battery layout
b) Number of cells per rack		Depends on the battery layout
c) Type of racks		Depends on the battery layout
d) Material of rack		Steel / Teak wood
e) Dimensions of the racks		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	102.4
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