General Technical Particulars

	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	AH	550
Rated	AH	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
5 hour	1.77	471.90
6 hour	1.77	492.80
7 hour	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	A	82.5
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	66
ii) Finishing current	A	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
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	145 x 206 x 721
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%)		
Each cell		
without acid	kg	31
with acid	kg	45.9
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	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		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		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	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

General Technical Particulars

	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	1.80	587.40
10 Hour	1.80	600.00
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	A	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
Equalising charge		
a) Voltage	V	2.3
b) Current	A	30
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	145 x 206 x 721
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 cell		
without acid	kg	34.3
with acid	kg	48.6
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	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		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		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		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	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

General Technical Particulars

	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
4 hour	1.76	514.80
5 hour	1.77	557.70
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	A	97.5
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	78
ii) Finishing current	A	39
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	650
ii) Maximum	mA	2600
Equalising charge		
a) Voltage	V	2.3
b) Current	A	32.5
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	145 x 206 x 721
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	kg	35.4
with acid	kg	49.4
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	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		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	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

General Technical Particulars

	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		
	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
9 hour	1.80	685.30
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 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	A	105
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	84
ii) Finishing current	A	42
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	700
ii) Maximum	mA	2800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	35
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	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	21.4
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
Each cell		
without acid	kg	40.8
with acid	kg	66.9
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	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		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	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

General Technical Particulars

	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	686.40
6 hour	1.77	716.80
7 hour	1.78	741.60
8 hour	1.78	760.00
9 hour	1.80	783.20
10 Hour	1.80	800.00
Maximum momentary current for 1 min till 1.60 e.c.v		1440
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.34
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	120
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	96
ii) Finishing current	A	48
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	800
ii) Maximum	mA	3200
Equalising charge		
a) Voltage	V	2.3
b) Current	A	40
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	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	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	kg	45.6
with acid	kg	70.9
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	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		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	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
Recommended Storage life of Battery (Dry shelf life)		12 months

General Technical Particulars

	Units	
Type of Cell		**8TBS900**
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	900
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		
	E.C.V.	**Ah output**
1 hour	1.67	459.00
2 hour	1.70	577.80
3 hour	1.75	672.30
4 hour	1.76	712.80
5 hour	1.77	772.20
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 & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.3
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	135
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	108
ii) Finishing current	A	54
iii) Voltage	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	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	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	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	kg	49.1
with acid	kg	73.5
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	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

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		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	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

General Technical Particulars

	Units	
Type of Cell		**9TBS1000**
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	AH	1000
End of Life	AH	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 of discharge		
	E.C.V.	**Ah output**
1 hour	1.67	510.00
2 hour	1.70	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	1.78	927.00
8 hour	1.78	950.00
9 hour	1.80	979.00
10 Hour	1.80	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	A	150
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	120
ii) Finishing current	A	60
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1000
ii) Maximum	mA	4000
Equalising charge		
a) Voltage	V	2.3
b) Current	A	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		1.240 +/- 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 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%)		
Each cell		
without acid	kg	53.3
with acid	kg	77.0
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	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		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	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

General Technical Particulars

	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		
Initial	AH	1100
Rated	AH	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 hour	1.78	1045.00
9 hour	1.80	1076.90
10 Hour	1.80	1100.00
Maximum momentary current for 1 min till 1.60 e.c.v		1980
Expected life of battery under normal operation & maintainence conditions	Years	15 years in stand-by float application
Internal Resistance of cell (IR)	milli ohms	0.24
Loss in capacity in 28 days due to self discharge	%	<8%
Recommended Charging rate for		
a) Float Charging		
i) Limit current	A	165
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	132
ii) Finishing current	A	66
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1100
ii) Maximum	mA	4400
Equalising charge		
a) Voltage	V	2.3
b) Current	A	55
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	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	18.7
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
Each cell		
without acid	kg	57.4
with acid	kg	80.2
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	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		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	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

General Technical Particulars

	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	AH	1200
Rated	AH	1200
End of Life	AH	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		
	E.C.V.	**Ah output**
1 hour	1.67	612.00
2 hour	1.70	770.40
3 hour	1.75	896.40
4 hour	1.76	950.40
5 hour	1.77	1029.60
6 hour	1.77	1075.20
7 hour	1.78	1112.40
8 hour	1.78	1140.00
9 hour	1.80	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	A	180
ii) Voltage	V	2.23 vpc
b) Boost charging		
i) Starting Current	A	144
ii) Finishing current	A	72
iii) Voltage	V	2.75
Trickle Charging Rate		
i) Minimum	mA	1200
ii) Maximum	mA	4800
Equalising charge		
a) Voltage	V	2.3
b) Current	A	60
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	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	32
Quantity of Electrolyte for battery (Including 10% extra)	litres	n X electrolyte per cell X 1.1
Weight(+/-5%)		
Each cell		
without acid	kg	65.5
with acid	kg	104.5
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		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		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	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