


16	Recommended Charging Rate			
(i)	Float Charging Voltage			
	between ambient temp. (-)5-14 ° C		2.27 +/- 0.02 VPC	
	between ambient temp. 15-24 ° C		2.25 +/- 0.02 VPC	
	between ambient temp. 25-34 ° C		2.23 +/- 0.02 VPC	
	between ambient temp. 35-40 ° C		2.20 +/- 0.02 VPC	
(ii)	Float Charging Current		36	Amps (Max)
(iii)	Trickle Charging Voltage		NA	
(iv)	Trickle Charging Current		NA	
(v)	Boost Charging Voltage		2.35	Volts
(vi)	Boost Charging Current		48	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge		72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current;Voltage		NA	
17	Guaranteed efficiencies at 10 hrs rate			
	(a) Ampere-hour efficiency		90%	
	(b) Watt-hour efficiency		80%	
18	Allowable voltage ripple		1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	

19	Internal Resistance of each cell at Fully Charged Condition		0.86	milli ohms min
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20	Total Resistance of Battery ; milliohms		Depending on no. of cells	
21	Overall Dimensions of each complete module (LxWxH) in mm		Length 588 +/- 5, Width 460 +/- 5, Height 288 +/- 5 (6 cell module)	
22	Weight of unpacked and complete module with electrolyte ; Kgs		100 +/- 5% Kgs (Single 6 cell module)	
23	Material of Modules		Powder coated MS	

24	Whether explosion vents are offered		Yes, self re-sealing rubber safety valve with flame arrestor	
25	Loss of capacity due to self discharge		< 0.5% per week of c-10 capacity	
26	The period for which the battery should be stored after supply in charged conditions		If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
27	Amount of Hydrogen evolved during normal normal float charging		Less than 200ppm normal float condition	
28	Recommended interval at which battery should be discharged at 10 hr discharge rate		Once annually	

29	No. of charge-discharge cycle battery can give during its entire life			
	at 20% DOD		4000 cycles	
	at 50% DOD		1800 cycles	
	at 80% DOD		1400 cycles	
30	Expected Life of Battery in years		20 Yrs at 27 deg C in ideal float condition.	

31	Applicable standard		IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005	
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SL. NO.	DESCRIPTION	DETAILS		
1	Capacity in Ah At 27 ° C			
(a)	Initial	320		
(ii)	Rated	320		
(iii)	End of Life	256		
(b)	Rated Capacity(in Ah) at minimum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
(c)	Rated Capacity(in Ah) at maximum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
2	Capacity at Various Discharge Rates at 27°C			
	Period of Discharge	Ah capacities	Discharge Current (Amps)	End Cell Voltage (Volts)
	10Hr	320.00	32.0	1.75
	9Hr	313.28	34.8	1.75
	8Hr	304.00	38.0	1.75
	7Hr	293.44	41.9	1.75
	6Hr	281.28	46.9	1.75
	5Hr	266.56	53.3	1.75
	4Hr	250.24	62.6	1.74
	3Hr	229.44	76.5	1.74
	2Hr	202.56	101.3	1.7
	1Hr	160.00	160.0	1.7
	50 min	149.44	179.4	1.7
	40 min	137.60	206.6	1.7
	30 min	128.00	256.0	1.7
	20 min	115.20	345.9	1.7
	15 min	95.58	382.3	1.7
	10 min	69.86	420.8	1.7
	5 min	39.33	472.1	1.7
	1 min	11.74	707.5	1.7
3	Maximum Momentary Current for 1 min upto cut off voltage of 1.6 V	960	Amps	
4	Expected Fault at bus due to battery	1920	Amps	
5 (i)	Short Circuit Current at Battery terminals	1920	Amps	
5 (ii)	Time for which the battery can withstand short circuit at terminals	5 Sec		
6	Type/No. of Negative Plates per cell	Flat pasted; 9		
7	Type/No. of Positive Plates per cell	Flat pasted; 8		
8	Size of negative plates, mm	315(L) x 140(W) x 2.65 (+/- 1) (Thk)		
9	Size of positive plates, mm	315(L) x 140(W) x 4.5 (+/- 1) (Thk)		
10	Type of Connection between cells	Bolted rigid copper connectors		
11	Type of Separators	Absorptive glass mat		
12	Thickness of Separators	4.2 (2 layers of 2.1 mm each)		
13	Dimensison of 2 volts cell (LXWXH) , mm	167 (+/-3) mm x 126 (+/-3) mm x 394 (+/- 5) mm		
14	Clearance between the bottom of the plates and container	5 mm		
15	Material of Container	Polypropylene Co-polymer		

16	Recommended Charging Rate		
(i)	Float Charging Voltage		
	between ambient temp. (-)5-14 ° C	2.27 +/- 0.02 VPC	
	between ambient temp. 15-24 ° C	2.25 +/- 0.02 VPC	
	between ambient temp. 25-34 ° C	2.23 +/- 0.02 VPC	
	between ambient temp. 35-40 ° C	2.20 +/- 0.02 VPC	
(ii)	Float Charging Current	48	Amps (Max)
(iii)	Trickle Charging Voltage	NA	
(iv)	Trickle Charging Current	NA	
(v)	Boost Charging Voltage	2.35	Volts
(vi)	Boost Charging Current	64	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge	72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current;Voltage	NA	
17	Guaranteed efficiencies at 10 hrs rate		
	(a) Ampere-hour efficiency	90%	
	(b) Watt-hour efficiency	80%	
18	Allowable voltage ripple	1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	



19	Internal Resistance of each cell at Fully Charged Condition	0.72	milli ohms min
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20	Total Resistance of Battery ; milliohms	Depending on no. of cells	
21	Overall Dimensions of each complete module without Terminal Cap (LxWxH) in mm	Length 588 +/- 5, Width 460 +/- 5, Height 288 +/- 5 (6 cell module)	
22	Weight of unpacked and complete module with electrolyte ; Kgs	125 +/- 5% Kgs (Single 6 cell module)	
23	Material of Modules	Powder coated MS	

24	Whether explosion vents are offered	Yes, self re-sealing rubber safety valve with flame arrestor	
25	Loss of capacity due to self discharge	< 0.5% per week of c-10 capacity	
26	The period for which the battery should be stored after supply in charged conditions	If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
27	Amount of Hydrogen evolved during normal normal float charging	Less than 200ppm normal float condition	
28	Recommended interval at which battery should be discharged at 10 hr discharge rate	Once annually	

29	No. of charge-discharge cycle battery can give during its entire life		
	at 20% DOD	4000 cycles	
	at 50% DOD	1800 cycles	
	at 80% DOD	1400 cycles	
30	Expected Life of Battery in years	20 Yrs at 27 deg C in ideal float condition.	


31	Applicable standard	IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005	
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GENERAL TECHNICAL PARTICULARS

NEPST/UPST 380



SL. NO.	DESCRIPTION	DETAILS		
1	Capacity in Ah			
(a)	At 27 ° C			
(i)	Initial	380		
(ii)	Rated	380		
(iii)	End of Life	304		
(b)	Rated Capacity(in Ah) at minimum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
(c)	Rated Capacity(in Ah) at maximum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
2	Capacity at Various Discharge Rates at 27°C			
	Period of Discharge	Ah capacities	Discharge Current (Amps)	End Cell Voltage (Volts)
	10Hr	380.00	38.0	1.75
	9Hr	372.02	41.3	1.75
	8Hr	361.00	45.1	1.75
	7Hr	348.46	49.8	1.75
	6Hr	334.02	55.7	1.75
	5Hr	316.54	63.3	1.75
	4Hr	297.16	74.3	1.74
	3Hr	272.46	90.8	1.74
	2Hr	240.54	120.3	1.7
	1Hr	190.00	190.0	1.7
	50 min	177.46	213.0	1.7
	40 min	163.40	245.3	1.7
	30 min	152.00	304.0	1.7
	20 min	136.80	410.8	1.7
	15 min	113.51	454.0	1.7
	10 min	82.95	499.7	1.7
	5 min	46.70	560.6	1.7
	1 min	13.95	840.1	1.7
3	Maximum Momentary Current for 1 min upto cut off voltage of 1.6 V		1140	Amps
4	Expected Fault at bus due to battery		2280	Amps
5 (i)	Short Circuit Current at Battery terminals		2280	Amps
5 (ii)	Time for which the battery can withstand short circuit at terminals		5 Sec	
6	Type/No. of Negative Plates per cell	Flat pasted; 11		
7	Type/No. of Positive Plates per cell	Flat pasted; 10		
8	Size of negative plates, mm	315(L) x 140(W) x 2.65 (+/- 1) (Thk)		
9	Size of positive plates, mm	315(L) x 140(W) x 4.5 (+/- 1) (Thk)		
10	Type of Connection between cells	Bolted rigid copper connectors		
11	Type of Separators	Absorptive glass mat		
12	Thickness of Separators	4.5 (2 layers of 2.25 mm each)		
13	Dimension of 2 volts cell (LXWXH) , mm	167 (+/-3) mm x 172 (+/-3) mm x 378 (+/- 5) mm		
14	Clearance between the bottom of the plates and container	5 mm		
15	Material of Container	Polypropylene Co-polymer		

16	Recommended Charging Rate		
(i)	Float Charging Voltage		
	between ambient temp. (-)5-14 ° C	2.27 +/- 0.02 VPC	
	between ambient temp. 15-24 ° C	2.25 +/- 0.02 VPC	
	between ambient temp. 25-34 ° C	2.23 +/- 0.02 VPC	
	between ambient temp. 35-40 ° C	2.20 +/- 0.02 VPC	
(ii)	Float Charging Current	57	Amps (Max)
(iii)	Trickle Charging Voltage	NA	
(iv)	Trickle Charging Current	NA	
(v)	Boost Charging Voltage	2.35	Volts
(vi)	Boost Charging Current	76	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge	72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current;Voltage	NA	
17	Guaranteed efficiencies at 10 hrs rate		
	(a) Ampere-hour efficiency	90%	
	(b) Watt-hour efficiency	80%	
18	Allowable voltage ripple	1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	

19	Internal Resistance of each cell at Fully Charged Condition	0.42	milli ohms min
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20	Total Resistance of Battery ; milliohms	Depending on no. of cells	
21	Overall Dimensions of each complete module (LxWxH) in mm	Length 619 +/- 5, Width 445 +/- 5, Height 388 +/- 5 (6 cell module)	
22	Weight of unpacked and complete module with electrolyte ; Kgs	156.3 +/- 5% Kgs (Single 6 cell module)	
23	Material of Modules	Powder coated MS	

24	Whether explosion vents are offered	Yes, self re-sealing rubber safety valve with flame arrestor	
25	Loss of capacity due to self discharge	< 0.5% per week of c-10 capacity	
26	The period for which the battery should be stored after supply in charged conditions	If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
27	Amount of Hydrogen evolved during normal normal float charging	Less than 200ppm normal float condition	
28	Recommended interval at which battery should be discharged at 10 hr discharge rate	Once annually	

29	No. of charge-discharge cycle battery can give during its entire life		
	at 20% DOD	4000 cycles	
	at 50% DOD	1800 cycles	
	at 80% DOD	1400 cycles	
30	Expected Life of Battery in years	20 Yrs at 27 deg C in ideal float condition.	


31	Applicable standard	IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005;	
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GENERAL TECHNICAL PARTICULARS

UPST / NEPST 400



SL. NO.	DESCRIPTION	DETAILS		
1 (a) (i) (ii) (iii) (b) (c)	Capacity in Ah At 27 ° C Initial Rated End of Life Rated Capacity(in Ah) at minimum ambient temperature of (as per IS 15549 : 2005) Rated Capacity(in Ah) at maximum ambient temperature of (as per IS 15549 : 2005)	400 400 320 Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$ Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
2	Capacity at Various Discharge Rates at 27°C <i>Period of Discharge</i> 10Hr 9Hr 8Hr 7Hr 6Hr 5Hr 4Hr 3Hr 2Hr 1Hr 50 min 40 min 30 min 20 min 15 min 10 min 5 min 1 min	<i>Ah capacities</i> 400.00 391.60 380.00 366.80 351.60 333.20 312.80 286.80 253.20 200.00 186.80 172.00 160.00 144.00 119.48 87.32 49.16 14.68	<i>Discharge Current (Amps)</i> 40.0 43.5 47.5 52.4 58.6 66.6 78.2 95.6 126.6 200.0 224.2 258.3 320.0 432.4 477.9 526.0 590.2 884.3	<i>End Cell Voltage (Volts)</i> 1.75 1.75 1.75 1.75 1.75 1.75 1.74 1.74 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7
3 4 5 (i) 5 (ii)	Maximum Momentary Current for 1 min upto cut off voltage of 1.6 V Expected Fault at bus due to battery Short Circuit Current at Battery terminals Time for which the battery can withstand short circuit at terminals	1200 2400 2400 5 Sec Amps Amps Amps		
6 7 8 9 10 11 12 13 14 15	Type/No. of Negative Plates per cell Type/No. of Positive Plates per cell Size of negative plates, mm Size of positive plates, mm Type of Connection between cells Type of Separators Thickness of Separators Dimensison of 2 volts cell (LXWXH) , mm Clearance between the bottom of the plates and container Material of Container	Flat pasted; 11 Flat pasted; 10 315(L) x 140(W) x 2.65 (+/- 1) (Thk) 315(L) x 140(W) x 4.5 (+/- 1) (Thk) Bolted rigid copper connectors Absorptive glass mat 4.5 (2 layers of 2.25 mm each) 167 (+/-3) mm x 172 (+/-3) mm x 378 (+/- 5) mm 5 mm Polypropylene Co-polymer		

16	Recommended Charging Rate		
(i)	Float Charging Voltage		
	between ambient temp. (-)5-14 ° C	2.27 +/- 0.02 VPC	
	between ambient temp. 15-24 ° C	2.25 +/- 0.02 VPC	
	between ambient temp. 25-34 ° C	2.23 +/- 0.02 VPC	
	between ambient temp. 35-40 ° C	2.20 +/- 0.02 VPC	
(ii)	Float Charging Current	60	
(iii)	Trickle Charging Voltage	NA	
(iv)	Trickle Charging Current	NA	
(v)	Boost Charging Voltage	2.35	Volts
(vi)	Boost Charging Current	80	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge	72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current; Voltage	NA	
17	Guaranteed efficiencies at 10 hrs rate		
	(a) Ampere-hour efficiency	90%	
	(b) Watt-hour efficiency	80%	
18	Allowable voltage ripple	1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	

19	Internal Resistance of each cell at Fully Charged Condition	0.42	milli ohms min
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20	Total Resistance of Battery ; milliohms	Depending on no. of cells	
21	Overall Dimensions of each complete module (LxWxH) in mm	Length 619 +/- 5, Width 445 +/- 5, Height 388 +/- 5 (6 cell module)	
22	Weight of unpacked and complete module with electrolyte ; Kgs	156.3 +/- 5% Kgs (Single 6 cell module)	
23	Material of Modules	Powder coated MS	

24	Whether explosion vents are offered	Yes, self re-sealing rubber safety valve with flame arrestor	
25	Loss of capacity due to self discharge	< 0.5% per week of c-10 capacity	
26	The period for which the battery should be stored after supply in charged conditions	If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
27	Amount of Hydrogen evolved during normal normal float charging	Less than 200ppm normal float condition	
28	Recommended interval at which battery should be discharged at 10 hr discharge rate	Once annually	

29	No. of charge-discharge cycle battery can give during its entire life		
	at 20% DOD	4000 cycles	
	at 50% DOD	1800 cycles	
	at 80% DOD	1400 cycles	
30	Expected Life of Battery in years	20 Yrs at 27 deg C in ideal float condition.	

31	Applicable standard	IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005;	
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GENERAL TECHNICAL PARTICULARS UPST 100



SL. NO.	DESCRIPTION	DETAILS		
1	Capacity in Ah At 27 ° C			
(a)				
(i)	Initial	100		
(ii)	Rated	100		
(iii)	End of Life	80		
(b)	Rated Capacity(in Ah) at minimum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
(c)	Rated Capacity(in Ah) at maximum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
2	Capacity at Various Discharge Rates at 27°C			
	Period of Discharge	Ah capacities	Discharge Current (Amps)	End Cell Voltage (Volts)
	10Hr	100.00	10.0	1.75
	9Hr	97.90	10.9	1.75
	8Hr	95.00	11.9	1.75
	7Hr	91.70	13.1	1.75
	6Hr	87.90	14.7	1.75
	5Hr	83.30	16.7	1.75
	4Hr	78.20	19.6	1.74
	3Hr	71.70	23.9	1.74
	2Hr	63.30	31.7	1.7
	1Hr	50.00	50.0	1.7
	50 min	46.70	56.1	1.7
	40 min	43.00	64.6	1.7
	30 min	40.00	80.0	1.7
	20 min	36.00	108.1	1.7
	15 min	29.87	119.5	1.7
	10 min	21.83	131.5	1.7
	5 min	12.29	147.5	1.7
	1 min	3.67	221.1	1.7
3	Maximum Momentary Current for 1 min upto cut off voltage of 1.6 V		300	Amps
4	Expected Fault at bus due to battery		600	Amps
5 (i)	Short Circuit Current at Battery terminals		600	Amps
5 (ii)	Time for which the battery can withstand short circuit at terminals		5 Sec	
6	Type/No. of Negative Plates per cell/ Material	Flat pasted;8, Lead Calcium Tin Alloy Grid		
7	Type/No. of Positive Plates per cell	Flat pasted;7, Lead Calcium Tin Alloy Grid		
8	Size of negative plates, mm	176.5(L) x 148(W) x 1.85 (+/- 1) (Thk)		
9	Size of positive plates, mm	176.5(L) x 148(W) x 2.8 (+/- 1) (Thk)		
10	Type of Connection between cells	Bolted rigid copper connectors		
11	Type of Separators	Absorptive glass mat		
12	Thickness of Separators	4.2 (2 layers of 2.1 mm each)		
13	Dimension of 2 volts cell (LXWXH) , mm	163.5 (+/-3) x 65.5 (+/-3) x 233.5 (+/-3) (mm)		
14	Material of Container	Polypropylene Co-polymer		



15	Recommended Charging Rate		
(i)	Float Charging Voltage between ambient temp. (-)5-14 ° C between ambient temp. 15-24 ° C between ambient temp. 25-34 ° C between ambient temp. 35-40 ° C	2.27 +/- 0.02 VPC 2.25 +/- 0.02 VPC 2.23 +/- 0.02 VPC 2.20 +/- 0.02 VPC	
(ii)	Float Charging Current	15	Amps (Max)
(iii)	Trickle Charging Voltage	NA	
(iv)	Trickle Charging Current	NA	
(v)	Boost Charging Voltage	2.35	Volts
(vi)	Boost Charging Current	20	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge	72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current;Voltage	NA	
16	Guaranteed efficiencies at 10 hrs rate (a) Ampere-hour efficiency (b) Watt-hour efficiency	90% 80%	
17	Allowable voltage ripple	1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	

18	Internal Resistance of each cell at Fully Charged Condition	0.91	milli ohms min
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19	Total Resistance of Battery ; milliohms	Depending on no. of cells	
20	Resistance of inter cell connectors;milliohms	Depending on no. of cells	
21	Overall Dimensions of each complete battery bank (HxWxL) in mm	Depending on system voltage	
22	Overall Dimensions of each complete module (LxWxH) in mm	Length 769 +/- 5, Width 243 +/- 5, Height 247 +/- 5 (12 cells module)	
23	Weight of unpacked and complete module with electrolyte ; Kgs	82.2 +/- 5% Kgs (Single 12 cell module)	
24	Material of Modules	Powder coated MS	

25	Whether explosion vents are offered	Yes, self re-sealing rubber safety valve with flame arrestor	
26	Loss of capacity due to self discharge	< 0.5% per week of c-10 capacity	
27	The period for which the battery should be stored after supply in charged conditions	If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
28	Amount of Hydrogen evolved during normal normal float charging	Less than 200ppm normal float condition	
29	Recommended interval at which battery should be discharged at 10 hr discharge rate	Once annually	

30	No. of charge-discharge cycle battery can give during its entire life	at 20% DOD at 50% DOD at 80% DOD	2000 cycles 900 cycles 700 cycles
31	Expected Life of Battery in years	10 Yrs at 27 deg C in ideal float condition.	

32	Applicable standard	IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005	
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SL. NO.	DESCRIPTION	DETAILS		
1	Capacity in Ah			
(a)	At 27 ° C			
(i)	Initial	165		
(ii)	Rated	165		
(iii)	End of Life	132		
(b)	Rated Capacity(in Ah) at minimum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
(c)	Rated Capacity(in Ah) at maximum ambient temperature of (as per IS 15549 : 2005)	Formula : $C_t = \{ 1 + 0.0043 (t-27) \}$		
2	Capacity at Various Discharge Rates at 27°C			
	Period of Discharge	Ah capacities	Discharge Current (Amps)	End Cell Voltage (Volts)
	10Hr	165.00	16.5	1.75
	9Hr	161.54	17.9	1.75
	8Hr	156.75	19.6	1.75
	7Hr	151.31	21.6	1.75
	6Hr	145.04	24.2	1.75
	5Hr	137.45	27.5	1.75
	4Hr	129.03	32.3	1.74
	3Hr	118.31	39.4	1.74
	2Hr	104.45	52.2	1.7
	1Hr	82.50	82.5	1.7
	50 min	77.06	92.5	1.7
	40 min	70.95	106.5	1.7
	30 min	66.00	132.0	1.7
	20 min	59.40	178.4	1.7
	15 min	49.29	197.1	1.7
	10 min	36.02	217.0	1.7
	5 min	20.28	243.4	1.7
	1 min	6.06	364.8	1.7
3	Maximum Momentary Current for 1 min upto cut off voltage of 1.6 V		495	Amps
4	Expected Fault at bus due to battery		990	Amps
5 (i)	Short Circuit Current at Battery terminals		990	Amps
5 (ii)	Time for which the battery can withstand short circuit at terminals		5 Sec	
6	Type/No. of Negative Plates per cell / Material	Flat pasted, 3(I) + 2(E), Lead Calcium Tin Alloy Grid		
7	Type/No. of Positive Plates per cell / Material	Flat pasted ,4, Lead Calcium Tin Alloy Grid		
8	Size of negative plates, mm	315(L) x 140(W) x 2.65 (+/- 1) (Thk) (Inter) 315(L) x 140(W) x 1.9 (+/- 1) (Thk) (End)		
9	Size of positive plates, mm	315(L) x 140(W) x 4.5 (+/- 1) (Thk)		
10	Type of Connection between cells	Bolted rigid copper connectors		
11	Type of Separators	Absorptive glass mat		
12	Thickness of Separators	4.2 (2 layers of 2.1 mm each)		
13	Dimension of 2 volts cell (LXWXH) , mm	167(+/-3) x 87(+/-3) x 394 (+/- 5 mm)		
14	Clearance between the bottom of the plates and container	5 mm		
15	Material of Container	Polypropylene Co-polymer		



16	Recommended Charging Rate		
(i)	Float Charging Voltage		
	between ambient temp. (-)5-14 ° C	2.27 +/- 0.02 VPC	
	between ambient temp. 15-24 ° C	2.25 +/- 0.02 VPC	
	between ambient temp. 25-34 ° C	2.23 +/- 0.02 VPC	
	between ambient temp. 35-40 ° C	2.20 +/- 0.02 VPC	
(ii)	Float Charging Current	24.75	Amps (Max)
(iii)	Trickle Charging Voltage	NA	
(iv)	Trickle Charging Current	NA	
(v)	Boost Charging Voltage	2.35	Volts
(vi)	Boost Charging Current	33	Amps.
(vii)	Time taken to full charge from 100% discharge state by constant voltage charging & voltage at the end of this charge	72 Hrs (Min) 2.1 volts(ocv)	
(viii)	Equalising Charging Current;Voltage	NA	
17	Guaranteed efficiencies at 10 hrs rate		
	(a) Ampere-hour efficiency	90%	
	(b) Watt-hour efficiency	80%	
18	Allowable voltage ripple	1.5 % RMS of the charging voltage(Bulk charging) 0.5 % RMS of the charging voltage(Float charging)	

19	Internal Resistance of each cell at (Fully Charged Condition)	1.28	milli ohms min
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20	Total Resistance of Battery ; milliohms	Depending on no. of cells	
21	Overall Dimensions of each complete module with Top Cover(LxWxH) in mm	Length 588 +/- 5, Width 415 +/- 5(w/o base member), Width 452 +/-5 (with base member), Height 210 +/- 5; (6 cells module);	
22	Weight of unpacked and complete module with electrolyte ; Kgs	75.0 +/- 5% Kgs (Single 6 cell module)	
23	Material of Modules	Powder coated MS	

24	Whether explosion vents are offered	Yes, self re-sealing rubber safety valve with flame arrestor	
25	Loss of capacity due to self discharge	< 0.5% per week of c-10 capacity	
26	The period for which the battery should be stored after supply in charged conditions	If stored in Indian ambient temp of 30 deg C cells will need freshning charge once in every three months, however if stored at higher or lower temperature freshning charge to be provided as recommended.	
27	Amount of Hydrogen evolved during normal normal float charging	Less than 200ppm normal float condition	
28	Recommended interval at which battery should be discharged at 10 hr discharge rate	Once annually	

29	No. of charge-discharge cycle battery can give during its entire life		
	at 20% DOD	4000 cycles	
	at 50% DOD	1800 cycles	
	at 80% DOD	1400 cycles	
30	Expected Life of Battery in years	20 Yrs at 27 deg C in ideal float condition.	

31	Applicable standard	IEC 60896 - 21 & 22, JIS : C 8704-2, : 1998 ANSI T1 330, GR/BAT-01/03-MARCH 2004, IS 15549 : 2005	
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