

Description	Unit	Value
Max Voltage	Volts	32.0
Minimum Voltage	Volts	24.0
Outer Diameter	mm	40.0
Height to Lid(max)	mm	100.0
Duration	sec	100.0
Maximum Weight	gm	500.0
Discharge Current	A	2.5

Load

S.NO	From	To	Current (units)	Calculation Duration	A-S(Duration * Current)
1.	0.0	10.0	5.0	10.0	50.0
2.	10.0	20.0	10.0	10.0	100.0
3.	20.0	30.0	15.0	10.0	150.0
4.	0.0	0.0	0.0	0.0	0.0
5.	0.0	0.0	0.0	0.0	0.0
6.	0.0	0.0	0.0	0.0	0.0
7.	0.0	0.0	0.0	0.0	0.0
8.	0.0	0.0	0.0	0.0	0.0
9.	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0
11.	0.0	0.0	0.0	0.0	0.0
12.	0.0	0.0	0.0	0.0	0.0
13.	0.0	0.0	0.0	0.0	0.0
Total					300.0

Dia for pellet mfg

S.No	Diameter of Jig
1	19
2	20
3	22
4	23
5	23.5
6	24
7	26

8	28
9	30
10	32
11	34
12	35
13	37
14	37.5
15	38
16	43
17	40
18	45
19	48
20	50

Determination of Pellet Dia

Item	Qty	Thickness_1	Thickness_2	Total_Thickness
Container od				40.0
Designed container				
Container ID				38.0
FX-70	4.0	1.0	4.0	8.0
Flexible Samica	1	0.1	0.1	0.2
Mica Strips	2	0.15	0.3	0.6
Samica Strips	2	0.1	0.2	0.4
Leads	1	0.15	0.15	0.3
Glass Cloth	1	0.1	0.1	0.4
Net Dia meter				28.1

Cathode Diameter	28
Anode Diameter	26

Base data for Determination of no.of cells & weight of Electrolyte

Electrode	Diameter - mm	Area - cm.sq	Weight-gms	Thickness - mm	Density - gms/cc	Weight/cm ²
Anode without cup	22.50	3.98	0.20	0.47	1.07	0.05
Cathode	24.00	4.53	0.61	0.48	2.81	0.13
Electrolyte	24.00	4.53	0.40	0.47	1.88	0.09
Heatpallet - 1	24.00	4.53	1.17	0.67	3.86	0.26
Heatpallet - 2	24.00	4.53	1.14	0.63	4.00	0.25

Heatpallet - 3	24.00	4.53	1.02	0.58	3.89	0.23
SS Plate at Cathode	24.00	4.53	0.16	0.05	7.07	
Capacity-As (specified)	175	300.0				
Capacity Target-As	210	360.0				
Observed Capacity at-50C(old)	1.0					
Invar cut off voltage per cell	1.5					
Invar Max Voltage at +70	29.94					
Invar Max voltage per cell at +70	1.87					
Estimated cells for new battery at Max		17.0				
Estimated cells for new battery at Cutoff		16.0				
Anode Diameter	22.50	26				
Cathod Diameter	24.50	28				
Ratio of Capacity		360.0				

Weights

Electrode	Diameter-mm	Area-cm sq	weight based on capacity ratio for Anode & Cathode & Area ratio for HP & electrolyte	Thickness-mm	Density gms/cc	Weight cm ²	Total Weight
Anode without cup	26	5.31	72.0	126.72	1.07	13.56	1224.0
Cathode	28	6.15	219.6	127.07	2.81	35.71	3733.2
Electrolyte	28	6.15	0.55	0.48	1.88	0.09	9.35
Heatpallet - 1	28	6.15	1.6	0.67	3.86	0.26	27.2
Heatpallet - 2	28	6.15	1.54	0.63	4.00	0.25	9.24
Heatpallet - 3	28	6.15	1.41	0.59	3.89	0.23	7.05
SS Plate at Cathode	28	6.15	0.23	0.05	7.33		3.91
SS Plate at Anode	28	6.15	0.23	0.05	7.33		3.91

S.NO	Item Description	Length	width	Thickness
1.	FiberfroX strips Stack Wrap	100.0	96.71	1.0
2.	FiberfroX strip Container Insulation	100.0	96.71	1.0
3.	Flexible Samica Wrap	100.0	96.71	0.1

Cost Sheet

S.No	Item Description	Dia	Length	Width	Thickness	Qty/bty	Units of Purchase	Density	Area	Volume	Weight/ SFT	Rate per unit of Purchase	Cost
1	LID												
1.1	LID BLANK					1							
1.2	DELIVER PIN					4							
1.3	GLASS TO METAL SEAL												
2	LID ASSEMBLY-A												
2.1	Lid					1	NO's					12.00	12
2.2	Tie wire		100.0	6	0.15	3	gms	9	8.16	0.12	0.00324	45.00	0.15
2.3	Glass Textolyte Disc (Pin Isolater)					1	NO's					32.00	32
2.4	Pin Connectors					2	NO's					24.00	48
2.5	Lead for Anode		100.0	6	0.15	3	gms	9	8.16	0.1224	0.003305	4242.00	14.02
2.6	Lead for Cathode		100.0	6	0.15	2	gms	9	8.16	0.1224	0.002203	4232.00	9.32
3	SQUIB ASSEMBLY												
3.1	Squib Terminals		50	6	0.15	2	gms	9	4.16	0.0624	0.001123	24352.00	27.35
3.2	Squib					1	NO's					45.00	45.0
3.4	FX-70 disc	28			1.6	3	SFT		900		0.00963	2442.00	23.5165
3.5	Glass Textolyte Disc-A(Top)					1	NO's					22243.00	22243
3.6	Glass Textolite Disc-A (Bottom)					1	NO's					44223.00	44223
3.7	Silicon Bonded Mica Disc	28			1	13	NO's	2.15	9.0	0.9	0.025155	24424.00	614
4	TOP ASSEMBLY												
4.1	Mica Disc					1	NO's					24424.00	24424
4.2	HEAT PELLET-2	28			0.63	6	gms	4.00	6.15	0.39	9.24		

4.3	Fiberfrox Disc	28			1.6	7	SFT		900		0.00963	42422.00	408.5239
4.4	S.S Disc (0.8mm)					1	NO's					444.00	444
5	CELL ASSEMBLY												
5.1	Current collectors S.S Disc (0.05mm) - Anode	26			0.05	17.0	gms	8	6.15	0.0308	0.004189	442.00	2
5.2	Current collectors S.S Disc (0.05mm) - Cathode	28			0.05	17.0	gms	8	6.15	0.0308	0.004189	24.00	0
5.3	Anode pellets	26			126.72	17.0	gms		5.31	67.2883	1224.0		
5.4	Cathode pellets	28			127.07	17.0	gms		6.15	78.15	3733.2		
5.5	Electrolyte pellets	28			0.48	17.0	gms		6.15	0.3	9.35		
5.6	Heatpellet - 1	28			0.67	17.0	gms		6.15	0.41	27.2		
5.7	Current collectors for Anode	28			0.15	2	gms	9	17.0	0.26	0.00468	434.00	2
5.8	Current Collectors for Cathode	28			0.15	2	gms	9	17.0	0.26	0.00468	43.00	0
6	BOTTOM ASSEMBLY												
6.1	Mica Disc					2	NO's					243.00	486
6.2	HEAT PELLET - 3	28			0.59	5	gms	0.58	6.15	0.36	7.05		
6.3	Fiberfrox Disc	28			1.6	6	SFT		900		0.00963	4.00	0.0385
6.4	S.S Disc(0.8mm)					1	NO's					24.00	4
6.5	Brace Plate					1	NO's					13.00	13
7	TIE WIRE CRIMPING												
7.1	Stack pyro Wicks-02		100.0	6	0.15	4	gms		8.16	0.12	0.00072	422222.00	303.9998
7.2	Flexible Samica Strips for Tie wires		100.0	6	0.15	6	gms	1.5	8.16	0.12	0.00108	343.00	0
7.3	Mica Strips for Tie wire					3	NO's					3443.00	10329
7.4	Mica Strips for Leads					4	NO's					24.00	972

8	STACK WRAP												
8.1	Fiberox strips Stack Wrap		100.0	96.71	1.0	2	SFT		19342.0		0.206959	64.00	13.2454
8.2	Glass Cloth Tape					1						7567.00	7567
8.3	Glass Cloth Gum Tape					1						45234.00	45234
8.4	Flexible Samica Wrap		100.0	96.71	0.1	2	gms	1.5	96.71	0.97	0.00291	54.00	0.1571
9	CONTAINER ASSEMBLY												
9.1	Container					1	NO's					3554.00	3554
9.2	Fiberox strip Container Insulation		100.0	96.71	1.0	2.0	SFT		19342.0		0.206959	342.00	70.78
9.3	Silicon Bonded mica disc for Housing	38.0			1.0	9	gms	2.15	16.0	1.6	0.03096	344.00	10.6502
9.4	Fiberox Disc	28			1.6	8	SFT		900		0.00963	3443.00	33.1561
9.5	Battery Cap					1	NO's					554.00	554
9.6	Argon gas cylinders					0.2	cum					344.00	69
9.7	Helium gas cylinders					0.1	cum					3454.00	345
		Ratio(%)											
1	Anode pellet												
a	Lisi	85									1.14444	55645.00	63682.3638
b	EB(80:20)	15									183.6		
c	Licl	45									0.072706	454.00	33.008524
d	KCl	55									0.088862	4332.00	884.950184
e	Mgo	20									0.040392	2344.00	94.678848
2	Cathode pellet												
a	Fes2	73.5									3.018292	344.00	1038.292448

b	Li2S	1.5									0.061598	435454.00	26823.095492
c	EB(80:20)	25									933.3		
d	Licl	45									0.369587	3455.00	1276.923085
e	KCl	55									0.451717	344334.00	5541.521478
f	Mgo	20									0.205326	43443.00	8919.977418
3	Electrolyte												
a	EB(60:40)												
b	Licl	45									0.002777	434.00	1.205218
c	KCl	55									0.003394	3455.00	11.72627
d	Mgo	40									0.004114	4343.00	17.867102
4	Heat pellet												
a	Fe	87									0.0416	3434.00	142.8544
b	Kclo4	13									0.006219	43443.00	270.172017
	Total											420369.543784	

phases	Total Value
Phase-1	945831.473514
Phase-2	756665.178811
Phase-3	504443.452541
Phase-5	504443.452541
Phase-8	756665.178811
Total phase cost	3468048.736218