

Process is Copper Cable
with Tin Plated Bus Bar

		Focused Melt Resistance Weld	Ultrasonic	Solder	Crimping	Friction Welding	laser welding (three pulses)
Annual Volume		30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000
Weld time each in		8	11	60	10	30	40
Parts per year (2-shifts- 270 work days)		1,579,500	1,148,727	210,600	1,263,600	421,200	315,900
Efficiency		0.8	0.8	0.8	0.8	0.8	0.8
Welds per hour		360	262	48	288	96	72
Welds per shift	8	2880	2095	384	2304	768	576
Welds based on 2 Shifts	18	5760	4189	768	4608	1536	1152
Annual welds per station	270	1,555,200	1,131,055	207,360	1,244,160	414,720	311,040
Stations Required		19.29	26.52	144.68	24.11	72.34	96.45
Total Hours required	16	80,246.91	110,339.51	601,851.85	100,308.64	300,925.93	401,234.57
Wages per hour	\$ 5.00	401,234.57	551,697.53	3,009,259.26	501,543.21	1,504,629.63	2,006,172.84
Overhead	\$ 5.00	401,234.57	551,697.53	3,009,259.26	501,543.21	1,504,629.63	2,006,172.84
Numer of Employees	2080	38.58	53.05	289.35	48.23	144.68	192.90
Extra processes							
Silver plate							
Flux							
Consumables		\$ 0.03	0.01			\$ 0.05	\$ 0.05
Gas for friction welding							\$ 0.05
Licence			\$ 0.05			\$ 0.05	\$ 0.05
Flux				\$ 0.050			
Solder				\$ 0.050			
Silver plate cable ends and connectors			0.15	\$ 0.150	\$ 0.15		
Sub Total		\$ 0.030	\$ 0.210	\$ 0.250	\$ 0.150	\$ 0.100	\$ 0.150
		\$ 900,000.00	\$6,300,000.00	\$ 7,500,000.00	\$ 4,500,000.00	\$ 3,000,000.00	\$ 4,500,000.00
Annual Costs		1,702,469.14	7,403,395.06	13,518,518.52	5,503,086.42	6,009,259.26	8,512,345.68
Cost per weld		\$ 0.06	\$ 0.25	\$ 0.45	\$ 0.18	\$ 0.20	\$ 0.28
Business Agreement Cost		\$ 0.02					
Per weld extended cost		\$ 0.08	\$ 0.25	\$ 0.45	\$ 0.18	\$ 0.20	\$ 0.28

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Floor space/Station (Square meter)		964.51	1,326.20	500-600 including plating area	1,205.63	3,616.90	4,822.53
Consumables							
Repeatability		Excellent	Good	Good	Good	Good	Good
Quality		Excellent	good	Good	Fair to Good	Good	Good
Pull Strength		3000 N	1200 N	1200-1500 N	800 N	1200 N	1200 N
Peel Strength		1000 N	500 N	500 N	500 N	501 N	502 N
Equipment costs (estimated China 0 per		\$ 250,000.00	\$ 200,000.00	\$ 1,000,000.00	\$ 200,000.00	\$ 2,000,000.00	\$ 500,000.00
Equipment cost for		\$ 4,822,530.86	\$5,304,783.95	\$ 144,675,925.93	\$ 4,822,530.86	\$144,675,925.93	\$ 48,225,308.64
Durability		Excellent	Fair	good	Fair to Poor	Fair to Poor	Fair to Poor

* costs are estimated as of the