

# Details for the BATTERY ASSEMBLING PLANT

## 1. HOLE PUNCHING MACHINE (FIVE HOLE IN ONE GO):

**Application:** This machine punches five holes at a time in the partition of container. Machine is pneumatically powered. Different size of hole can be done with the help of different die for different size of batteries. One Die will make One size of battery.

**Operation:** Place the container in upside down position to fit required slot. To punch five holes, only one operation is required. Different die is required to suit different size of battery container.

**Capacity:** 100 containers/ hour.

**Air consumption:** 0.07 Cubic Foot/ stroke at 70PSI or 5 Kg/cm<sup>2</sup>

**Manpower Requirement:** One Layman



## 2. INTER PARTITION WELDING MACHINE

(Rotatable Welding Head, Height adjustable with conveyor connection):

**Application:** This machine connects cells through the partition of container.

**Operation:** This Machine forges L- connector of cells through the hole of partition together and passes heavy current at low voltage so portion of these connector through hole of partition melts, taking advantage of resistance of lead, and become single entity. This machine does mass production and running cost comes to minimum, hence cost per battery is reduced to minimum.

### Major Specialties:

- A. **Transformer** - Current source of Machine is state of art heavy transformer of 65 KVA rating. We use best quality of copper, which dissipates lesser heat. So machine does not waste Costly electricity in the form of heat. Only Air-cooling is sufficient. If water-cooling is used it will increase running load of pump and wastewater, which has also becoming precious and harming to environment so our machine is environment friendly. At the same time reducing running cost of machine.
- B. **Welding Computer (Micro Processor based Controller)** - It is designed indigenously as per need of our operator. This computer supply constant energy at constant current. Welding processes & parameters are controlled automatically & accurately by specially designed microprocessor. Operator can program 10 programs for different batteries. all parameters such as Squeeze Time, Weld Time, Cooling Time and required Current as per battery size, are fed to controller for battery size and recall whenever

that size of battery is made. Operator can also see which operating time has been lapsed which other controllers do not provide. He can also communicate if any of the problems so he could be guided directly without physically present on the machine. If any type of problem arises it can be replaced/ repaired at nominal cost even after warrantee period.

C. **Welding Heat adjustment** : This controller is specially designed to suite lead melting say 250°C to 700°C, this bend is divided in 99 digits setting, unlike imported Controllers i.e. Miyachi etc which has controlling temperature from 50°C to 3000°C this bend is also divided in 99 digits setting, so operator does not get accurate results. This results in faulty connection without consistency. Welding Heat Adjustment: 0 to 99%, Welding Time Adjustment: 0 to 99, All are digital Display.

D. **Double Arms Movement** - For forging, we have designed better Forging Head. This head has double arms movement and self-centering arms.

**Man Power Requirement: One Operator.**



### **3. AUTOMATIC HEAT SEALING MACHINE** (Pass Through & adjustable height) :

**Application:** This machine seals Lid to Container. For every size of container you require Separate sealing fixture.

**Operation:** Battery has to be pushed to other machine manually. Battery has to be placed from Side & pulled to get battery out from machine. Hot Plate has two different temperatures to melt cover & container respectively. Fixture is required to hold top cover for melting & sealing. This machine is having heavy structure to suit faster production and longer life.

**Self-setting fixture** - Fixing of fixture is so easy that a layman can do job.  
Change -over time is less than Three Minutes.

**Self-Fault Finding Technology:** - In this technology, if machine is faulty due to any reasons, then machine will itself find out & show the problem on Control Panel screen that where exactly is the problem.

**Hook System** - We use hook system (Positive Locking) to pick lid, so it is everlasting, no recurring expenses like Vacuum cups which require changing of vacuum cups & consuming electricity for operating vacuum pump which has to be maintained properly and finally replaced after sometime.

**Faster operation** - Operation of machine take lesser operating time, hence output is increased. Moreover interval, between Lid melting and pressing it with container, is reduced to minimum. Otherwise melted portion of lid will be having cooled layer which will increase chances of Leakage. This feature of our machine gives Best Sealing.

**Pass Through Machine** - Machine is designed in such a way that any size battery can be passed through the machine, need not to push battery inside the machine laterally and pulled out which require extra effort by

the operator. Battery is sealed on conveyor itself, hence reducing effort of operator at the same time increasing output of machine. It means Labour cost/Battery is reduced.

**Adjustable Height** – Any size of battery can be accommodating on the same machine including 2Volt cells. Max. Height of the battery is increased to 800mm.

**Dual (Different Temp. for cover & Container)Temp. Hot Plate** – Hot plate for this machine is having auto dual temperature to seal leak-proof.

**Capacity:** 60 Batteries/hour of any size.

**Electrical Power Requirement:** 415Volts to 380 Volts, 10Kw.

**Heat Temperature:** 400°C is adjustable depending on Plastics used in container.

**Compressed Air Power:** 0.09 Cubic Foot / stroke at 120 PSI or 8 Kg/cm<sup>2</sup>

**Man Power Requirement:** One Operator.



#### **4. Fixtures**



For different sizes of Battery container Cover you need a separate Fixture/ Mould.

#### **Other Machines: -**

##### **O1. STRESS TESTING MACHINE (Auto Electro- Pneumatic) Application:**

This will check strength of welded connections torsion strength by applying mechanical force across connections.

**Operation :** Fingers has to put manually across connection so it is able to apply Force on one connection against other this force can be varied depending on connection size or size of battery, if that connection is hollow it will break. The time to apply force is determined by Digital Timer so force as well time to apply force is precisely preset hence result become accurate.

**Capacity:** 80 Battery/hour.

**Force:** 785 kgf. Adjustable



## **O2. AIR LEAKAGE TESTING MACHINE (AUTO MODEL):**

**Application:** This machine checks air leakage in six cells of the battery in one cycle. Leakage of Cells can be watched on respective Digital Pressure Gauges which is provided for all cells in addition to this, leaked cell will have visual indicator with buzzer for respective cell.

**Operation:** Place the battery on the machine and press the button Cycle Start. Machine will automatically hold the battery from top and fills a certain air pressure according to the battery size. After that it checks the air leakage on diagonal cells so getting fool proof result of getting the leakage in particular cell. After the cycle finishes machine will go to its home position.

**Capacity:** 50 Batteries/hour.

**Testing Pressure:** Adjustable from 1 PSI to maximum as per battery sizes.

**Testing Time:** Depending on operator.

**Man Power Requirement: One Operator.**



### **O3. SHORT CKT. TESTING MACHINE (AUTO)**

**Application:** This machine checks pin hole, separator missing and splash of lead in cells, etc. It also checks that all the cells are connected to each other with the help of high voltage. If there is any fault then it gives visual indication as well as audio alarm.

**Operation:** Operator has to place the Battery underneath the machine and press the button, which initiates machine that does its job for all the cells in one go.

**Capacity:** 50 Battery/hour.

**Man Power Requirement:** One Layman

**Electricity Required:** - 40 Watt.

#### **SHORT CIRCUIT TESTING FIXTURES:**





### **05. SERIAL NO. PUNCHING MACHINE (AUTOMATIC):**

Operator need not to change punches daily. Operator has to press a push button, which initiates pneumatic cylinder for a set period so hot punches are pressed at set temp. For a set period with the set force to mark the exact set depth on the lid. This machine is more accurate. Every Battery manufactured will have distinguished Mark on it. It can be alphabetically or numerically or Combination of both. Number of Punches can be Six/Eight/Ten or as per requirement of individual Manufacturer.



**O6. Conveyer (10 Mtrs)**



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