

# Details for the BATTERY ASSEMBLING LINE 1<sup>st</sup> Plant

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

**Application:** This machine punches Single hole at a time in 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. Three Dies will make five sizes of batteries.

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

**Capacity:** 40 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**

(Stand Alone Model):

**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 the 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.
- E. **Man Power Requirement: One Operator.**
- F. **Power Requirement: 20Kw, 2Phase.**



### **3. AUTOMATIC HEAT SEALING MACHINE**

(Stand Alone Model):

**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 Front & 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 Fifteen Minutes.

**Hook (Clamping) 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.

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

**Capacity:** 50 Batteries/hour of any size.

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

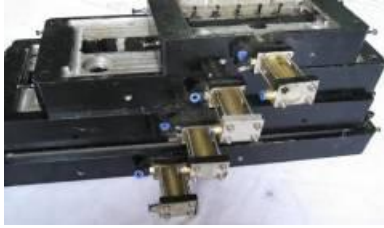
**Heat Temperature:** 400 ° C is adjustable depending on Plastic materials used in container.

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

**Man Power Requirement:** One Operator.



#### **4. HEAT SEALING FIXTURES:**



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

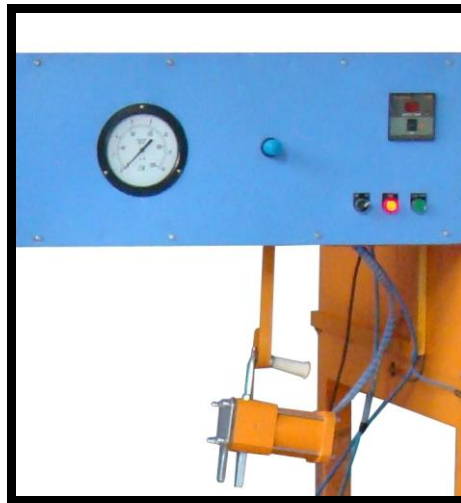
This will check strength of welded connections torsion strength by applying mechanical force across connections.

**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

**Man Power Requirement:** One Layman



#### **O2. AIR LEAKAGE TESTER**

**(MANUAL MODEL):**

**Application:** This machine checks air leakage in One cell of the battery in one go. Leakage of Cells can be watched on respective Pressure Gauges which is provided.

**Operation:** Place the Leakage Tester on every Battery's cell and fill a certain air pressure according to the battery size. After that it checks the air leakage on particular cell so getting fool proof result of getting the leakage in particular cell. After this cycle finishes, repeat the same with rest of the cells.

**Capacity:** 50 Batteries/hour.

**Testing Pressure:** Adjustable from 1 PSI to maximum as per battery sizes (Max. 6PSI for N200).

**Testing Time:** Depending on operator (5 seconds to 15 Seconds).

**Man Power Requirement: One Operator.**



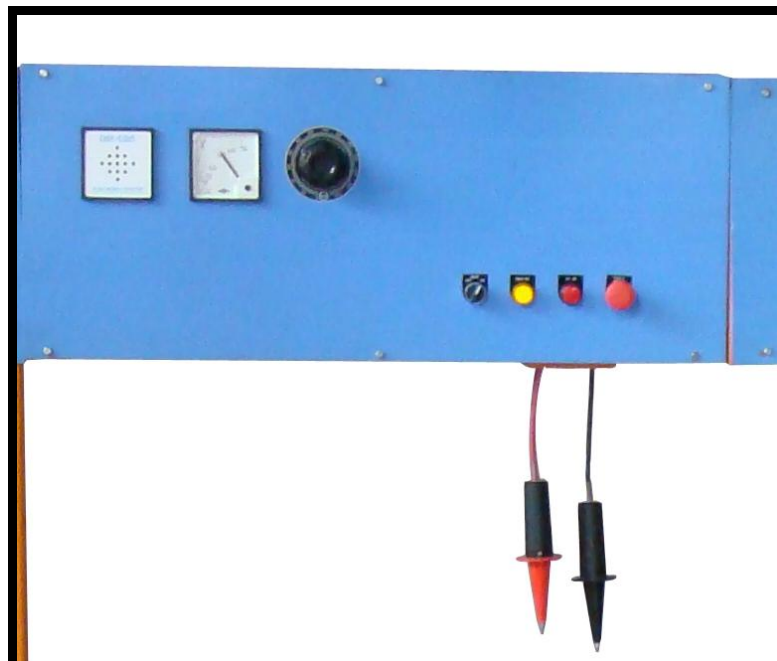
### **O3. SHORT CIRCUIT TESTER (ONE CELL IN ONE GO):**

**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 on its Probe, which initiates machine that does its job for One cell in one go.

**Capacity:** 40 Battery/hour.

**Man Power Requirement: One Layman**



### **O4. Conveyor (5 Mtrs)**



**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 the set period with a set force to mark the exact depth on battery cover. 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.



\*\*\*\*\*