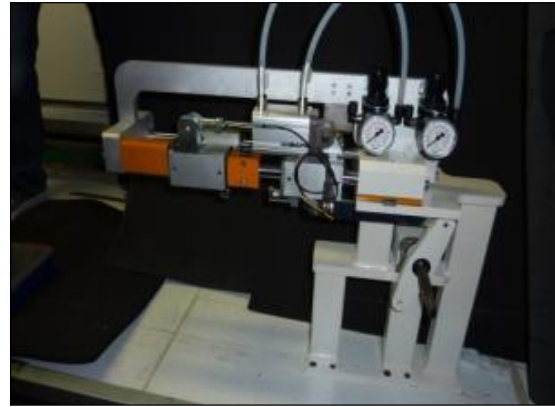


Update : 12/9/2022



**ISP** has developed a set of machines capable of producing battery components NI-Cd & LI-ION and monitor their efficiency.

## 1 - Manufacture machine of batteries component Ni-Cd

### **Winding equipment**

These machines allow the winding of two electrodes (plate of variable length): one on the other separated by a sheet of insulating paper. These machines are equipped of three precision axes motorized by brushless motor controlled on encoder. The manufactured spools are strapped by handling ring (tooling) and are evacuated automatically.

### **Batteries' unit calibration**

This machine allows calibration of length of spools manufactured by the winding equipment. During this next process step, it crushes automatically the edge of spools' electrodes, high speed, in order to solder links.

These elements are inserted into machines comprising different operations (on small size of accumulator). They are on a mechanic synchronism (cam). This system has evolved over a joint steering, mechanic with cam and pneumatic, with synchronization by automation and a rotary encoder.

## 2 - Manufacture machine of batteries' unit Li-Ion

### Li-Ion coating

This machine allows to lay electric charge in continuous, on the copper or aluminum sheet which will constitute the electrode of accumulator.



### Compression of elements

These machines allow to calibrate the length of spools output of winding. These machines have two locked axis, allowing an automatic adjustment on the calibrated length, and to facilitate the change of series, also to compress the spools by turning accurately to be the most efficient during the operation.



### Shrinking on off cover

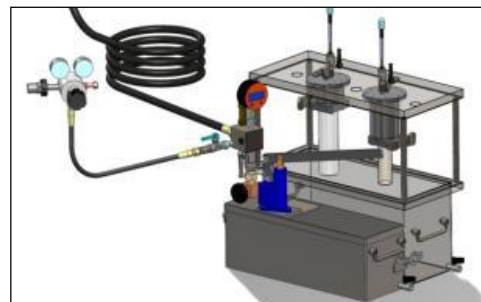
This pilot station allows the automatic bending of connection and cover of element. Usually, this station is used outflow for the development of the kinematic motion. Then, it has been automated and integrated on automatic line.



*Non contractual photo*

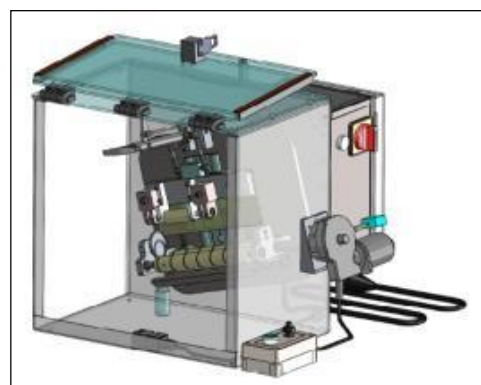
### **Bench of pre-emptying of element**

This automatic station checks the sealing of the elements to primary vacuum after welding the cover. This station isolates the major defects, before the test station of the secondary vacuum.



### **Bursting of socket pot//buckets**

This laboratory equipment allows checking bursting pressure of sockets with assembly (burster disc).



### **Cutting of elements**

This laboratory equipment allows cutting of element with electric defect, to analyze the defect.

#### **This machine can :**

- Cut the cover and the bottom (metallic particle free)
- Recover electrolyte volume

