



DITEC
Engineering

BATTERIES FORMATION EQUIPMENT



DITEC Engineering



Our expertise at your service

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Our history

Your future is in our history

DITEC Engineering designs, builds and installs innovative solutions for the **movement and the formation of accumulators and lead-acid batteries**. With more than twenty years of experience in the industry, DITEC Engineering offers reliable and decisive solutions for the automotive, traction and stationary industry.

The energy storage is constantly evolving and therefore, DITEC Engineering, studies and offers solutions

to **improve the production process** in order to optimize and speed up the battery charging cycles.

Working with us means having a value team with great experience in the batteries industry. Process knowledge, and deep expertise in the processing of materials, allow us to produce plants with **attention to the details** granting reliability.

DITEC Engineering is a brand of **H2 Ltd**, a leader in water

and air treatment systems, with more than 15 years in the industry.

“ We have to do the best we can. This is our sacred human responsibility.

A. Einstein



Our philosophy



The difference is in the details

Care to details, attention to materials and customization according to customer needs are our values. For DITEC Engineering is important to offer customized solutions for systems of excellence.

We consider very important the **utilized materials** to ensure robustness and functionality of the machines and of the production line.

The DITEC Engineering team works with passion to deliver highly engineered solutions.

Our keywords

1

*Plan
together*

The facility is designed together with the customer, following the **specific needs** defining objectives, performance and technical details.

2

Flexibility

The modularity of our solutions allows us to offer **customized solutions** for every need.

3

Excellence

The acquired experience and the prestige of **Made in Italy**, turns for us of DITEC Engineering in efficient long-lasting product.

CUSTOMIZED
INSTALLATIONS
AT YOUR SERVICE

Services

Work with DITEC Engineering means having a **single partner** who thinks to optimal solutions and is committed to assist its customers in the **installation, use and maintenance** of the production plant



Design and customization

DITEC Engineering team creates innovative ideas and gives a shape to them; our technological know-how, in addition to suggesting proven solutions, provides skill, pragmatism and innovation.



Installation and Start-Up

Installation and Start-Up: our technicians install and start up the plant on time. Alternatively, we provide specialized project managers, able to lead a local team.



Training

With a training process we instruct operators, to allow the customer to be autonomous from the beginning.



Maintenance of other machinery

We execute extraordinary maintenance on less performing machines due to production and time. Our technicians regenerate them, bringing them back to the initial status.

Products presentation

DITEC Engineering is specialized in the formation, management, transportation and movement of lead-acid batteries.

Each product is equipped with all **safety** devices required to operate safely and in **full compliance with regulations**.

The implants we propose are integral and designed to interact with each other.

A single machine can become **part of a plant**, dimensioned according to particular needs. The choice of the automation level is the answer to the production requirements; it's also possible to **centralize the supervision** of the plant in a single location or control room.



Formation water baths

The formation tank allows an **optimal cooling of the batteries** during the charging stage, which thus occurs at a constant temperature. This allows to transfer a greater amount of charge while keeping short the formation time.

The formation tanks produced by DITEC Engineering are entirely made of **AISI316L stainless steel** and materials that doesn't react with acids used in the batteries. They are equipped with devices which allow to manage the process in a precise way, with the **moving systems, water management systems, suction hoods** and **voltage rectifiers**.

Motorized rollers move the batteries along the whole tank, distributing the distances between them to allow a **homogeneous flow**

of the cooling liquid. Tanks inlet and outlet are equipped with pneumatic bulkheads that facilitate the passage of batteries as well as containing the cooling water during the formation time.

A system of pumps and sensors regulate the water level and its recirculation. On the basis of the temperature setting and the amount of heat emitted from the batteries, the system is able to carry out a replacement of the cooling liquid and ensure a **greater dissipation capacity**.

The tanks are entirely covered by suction hoods which, along with side panels, fully enclose the tank to conveying the produced gases to special air management systems.





The production cycle is automatic and all the parameters, the levels, the steps of handling and timing are managed and customized by the operator thanks to a **centralized supervision system**.

Moreover, light indicators allow a simple and immediate monitoring of the current stage.

Options

Manual formation tanks that allow a free positioning of the batteries, keeping the other features, are available on request.

For all the models is available an optional device that generates micro bubbles in order to maximize the heat transfer between water and batteries.

Main features

- Optimization of the battery cooling
- Optimized management of convection
- Customizable dimensions and productivity
- Centralized management software
- Multiple work recipes
- Centralized air and water extraction
- High durability materials

Loading/Unloading shuttle

The shuttles manage the loading and unloading of the formation tanks. Through an automated process, the machine **transfers the batteries** from the filling line inside the tanks or processes their evacuation toward the outlet line.

A shuttle can **manage multiple tanks** thanks to its own moving system placed over the conveyor belts.

The loading shuttle, after having centered the battery from the loading belt, prepares a row

of batteries to better fill the formation tank. The optimization of the placement of the batteries in the tank is a critical aspect for the subsequent management of the temperature. For this reason, DITEC Engineering shuttles guarantee **precise and highly repeatable positioning**.

For small productions is available a manual version of the shuttle which facilitates the operator in the loading and unloading of the formation tanks.

Main features

- Optimization of the formation tank loading
- Multiple tanks management with a single machine
- Integration with the transport system
- Centralized management software
- Multiple work recipes
- High durability materials



Conveyor belts

DITEC Engineering conveyor belts allow a **quick and functional** handling of the batteries throughout the production facility.

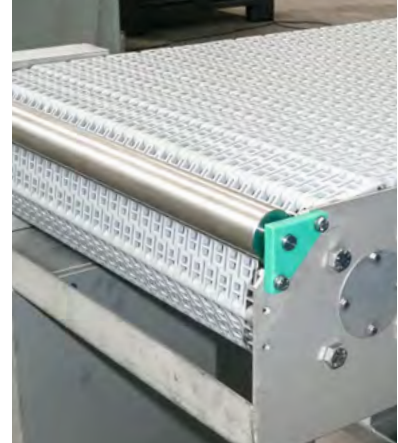
Made of stainless steel, with polypropylene belt, they are designed to provide maximum efficiency.

Lengths, widths and heights are **fully customizable** to create any type of formation line and manage the various battery production processes. The belts structure is modular and allows more flexibility and low costs.

The conveyor belts are equipped with the latest interfaces to communicate with the loading and unloading shuttles. Belts with motorized movement are also available, but the handling is manually controlled by the operator when managing parts of semi-automatic line.

Main features

- Modular configuration
- High durability materials
- Interface with upstream and downstream stations
- Centralized management software
- Various accessories available



Accessories

To complete the transport lines, DITEC Engineering produces a range of accessories that can be integrated together with conveyor belts or within the production facility.

Rotation unit

The rotation unit prepares the battery for the next phase by orienting the poles according to the direction required. The rotation can take place in both directions, with rotations of 90° or 180°.

Transfer unit

This unit allows to combine multiple sections of a transport line making 90° joints, or else it's responsible for the belts synchronization and for the transfer from one section to another.

Clocking unit

This option, also called separator, allows to create a buffer of batteries on a belt and then release them individually according to the needs of the next section. In order to increase the accumulation capacity, it is possible to use several parallel belts.

COMPLETE SOLUTIONS

Air and Water treatment

DITEC Engineering manufactures and installs plants to **filter and clean water and air** used during the battery production process.

The air is extracted from the hoods and is conveyed through a centralized suction system. A filtering system **removes the sulfur particles present in the air** so allowing a recirculation or a re-entry into the environment.

The water treatment plants make neutral the water used in the formation tanks. A chemical

clearing system allows to clean the water and **neutralize any traces of acid** leaked from the batteries.

The air and water treatment plants are designed to allow **heat recovery** from the filtered air and the **water temperature control** after treatment. This enables high energy savings on one hand, and a greater efficiency of the batteries formation system on the other side.

Main features

- Centralized air and water management
- Optimization of water temperature for refreshment tanks
- Heat recovery
- Easy integration
- Designed to work 24/7



Refreshment dock

The refreshment boxes allow the **regeneration of the batteries charge** after long periods of storage or inactivity. They are therefore particularly interesting for large distributors.

The refreshment dock produced by DITEC Engineering is a revolutionary product and allows the **management of the batteries storage**, avoiding rework at the main production site.

The refreshment stand structure is modular and based on a basic block of 6x1m which holds 80 L3 standard batteries. Thanks to this structure, variable sizes systems can be made.

The machine is designed to be **standalone** and complete in all its parts. The rollers for the moving of batteries, the rectifiers, the distribution and connection cables and the fume extraction system with aspirator, allow operation also outside of the production site.

As for all DITEC Engineering solutions, the refreshment dock materials are carefully chosen to ensure reliability and safety.

It is possible to equip the refreshment box with a dedicated drive for the insertion of the batteries.

Main features

- Improves warehouse management
- Modular and expandable frame, custom sizes on request
- Complete of rectifiers, connections and suction hoods
- Customizable refresh recipe





Collaborations

Working with DITEC Engineering means to be networked with a number of leader companies. Thanks to the synergic work with our partners we can offer and install complete and integrated solutions.

Especially:

We work with “**La Pneumatica S.r.l.**” acknowledged as industry leader, deals the entire production process of the batteries.

We work also with “**Ferrazza S.r.l.**” to equip our machines with the best technology and control automation.



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