Thanks to our partnership with Totalution and its 30 years of experience in the galvanisation field, **NAPA International France** now distributes the **Optigalv®** system, an optimized automated solution, flexible and modular for your plant. This unique solution can improve your productivity with a fast return on investment.

Fields of application

Any surface treatment with a sequence of baths in chemicals with or without applying an electric current of metallic or plastic artifacts:

- electro plating of zinc (alcalin or acid solution), nickel, chrome, copper, tin, brass, gold, platinum, titanium, palladium, silver…

- galvanization
- électropollishing
- passivation stainless steel
- burnishing
- cataphoretic painting

- aluminium anodizing
- manganese phosphating
- chemical, electrical or ultrasonic degreasing
- chemical or electrochemical oxidizing
- dip coating

Optigalv® is the intelligent solution for your electro-plating line (electro-galvanic plant). The fact that it can be composed of around ten tanks and a single crane or extend to 200 containers and 8 cranes or more, is not an issue. Whether your line is fully manual or automatic, **Optigalv®** will integrate as much as possible your existing equipment and devices.

The **Optigalv®** system is easy to configure. Everything has been designed to adapt the software to your configuration with a few user friendly parameterizing screens that can be use after a short training session. Inititial **Optigalv®** configuration is done by our team according to your requirements. **Optigalv®** is is truely open, you will be able to adapt it to most future changes through the HMI screens.

- Modular design
- User friendly Human-Machine Interface
- Production flexibility (499 recipes)

- Reduced time to adapt to your requirement
- Crane move optimization
- Production data export for analysis

- Energy savings with the Calender module which allows to reduce the container temeratures during the night and an automatic restart in the morning before first shift arrival.

Containers and Cranes

Containers :

- Wired I/O or via Profibus fieldbus (apply to electrical rectifiers too)
- From 10 to 200 containers or more
- Optional temperature, level, pH control…

Cranes :

- Wired I/O or via Profibus fieldbus (apply to variable frequency drives too)
- From 1 to 8 cranes or more
- Position control with laser or any other system (mechanical landmarks along the way)

Production recipes

This example relates to a production line with 63 containers and 3 cranes.

Forget all about making those difficult time and routing diagrams that are nothing but trouble on your sequence-controlled plant.
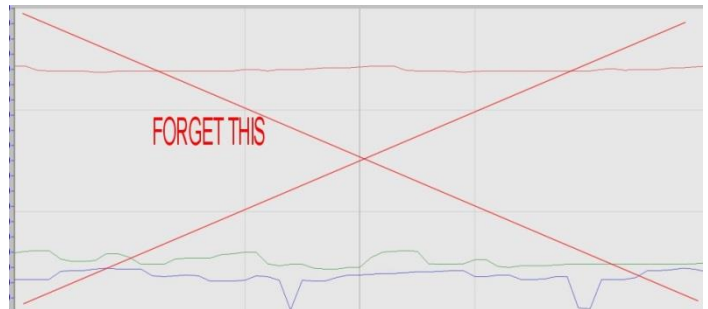
With **Optigalv®** you are not limited by a simple sequence. You just have to make a recipe that follows your desired route through the plant, with the times and currents that is appropriate for the selected product. You do not even have to think about which crane has to do the transport. **Optigalv®** controls this. Plain and simple.

Annotations (right side of the recipe screen):

- Here you specify which vessels to be dipped in
- Here you specify the processing time in seconds
- Here you can set the priority
- Here you can specify how many vessels which must be available before being moved from this vat
- Here you specify the drip time
- Here you specify the desired current
- Here you can set special function selection
- UP and DOWN can be used to specify reduced lifting and four speed if this is deemed necessary for some items
- Recipes can be named and stored on and retrieved from a CF card
- You can insert and delete lines
- The HMI language can by set to either English , German, French,…

The recipe can contain 24 dips, for every dip it defines the time, flow, priority, etc.

In the recipe you can easily choose which containers you want to use, how long time, which current, time for drip, priority etc. **Optigalv®**can handle different recipes at the same time, and the cranes divide the work between themselves automatically. With **Optigalv®**all you have to think about is the chemistry and the production, and if you want to introduce new chemistry to the plant, or make another route through the plant, you just have to make a new recipe to apply the changes.

On the main screen you have a complete picture of the plant, cranes, recipes, bars etc...

For instance, you can make the screen shift between showing the remaining time in a container, the recipe in container, or the active bar in the container.

One (or several) bargraph(s) will display the load percentage according to the recipes started for production for the treatment that you want to monitor, such as zinc here:
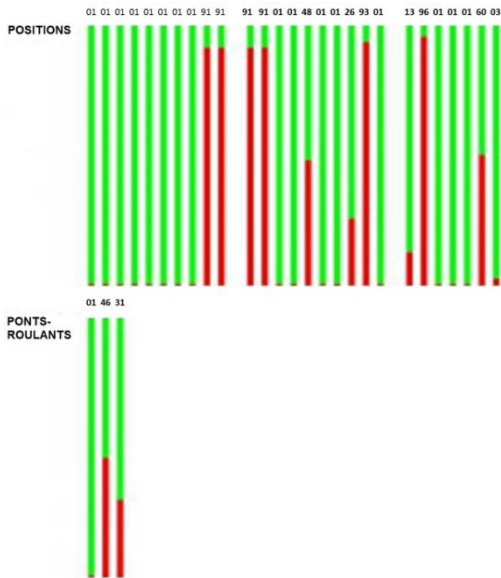
Performance:

Another screen display the exact load of your plant: the percent-used of each container and each crane across the last 60 minutes (or any duration you decide as relevent).

Buffer zone

The *buffer zone* concept, between the production line and the input/output zones, allows you to define, aligned with the containers some waiting position where the active bars can be temporarily stored right before starting their production or right after its completion, without stopping production. **Optigalv®** automatically picks the prepared active bars from the *buffer zone* as soon as the first container is available. Similarly, when **Optigalv®** must deliver a completed active bar, if you are not ready to receive it in the output position, then it will temporarily store it in a *buffer zone*.

Even more so, you can let **Optigalv®** start automatically before you get to work in the morning, if you have placed goods ready in the *buffer zone* the day before. The plant will then be up and running by it selve before you are done with your morning coffee.

There can be several buffer zones, depending on the physical space available in line with the containers, within the crane ranges. The more you have *buffer zones tampons,* the smoother your production will be and will be able to proceed even when operators are not present (before the first shift, after the last shift, during lunch and other breaks…)

Parameterized modules

Beyond *buffer zones*, **Optigalv®** can be configured for each container (or group of contiguous containers) with various **optional modules**:

- Automatic temperature control of the container, its pH, its level (by adding water)
- Control of electrical rectifier with setpoint for current or voltage (when several tanks share a common rectifier, or if active bars contain items of very different sizes), or internal rectifier program number (for the most recent rectifier technology). We can integrate existing rectifiers, even if they are very old
- Automatic dosing of chemicals (on a time basis, a number of active bars, or Amp hours)
- Automatic handling of a container cover
- Automatic VNC vacuum depending on container cover position
- Handling cranes for possible height differences between container positions
- For input/output areas, proximity detection of an I/O wagon with a new active bar (hanger or drum) or an empty I/O wagon to receive a completed active bar
- Safety control such as human body and other object detection (e.g. using a radar) in the risky areas
- A radiofrequency remote control for moving the crane in manual mode

Optigalv® allows production report generation as data table to be exported as csv file in order to be further processed externally, e.g. with Excel. Report data, such as actual duration in each container, depend on your specific tracability requirement.

Optionally, **Optigalv®** can handle automatic filling of drum (with a weighing system) and/or used liquid and water treatment (filtering, drying, ...). it can be adapted to your very need and your existing equipment.

Architecture
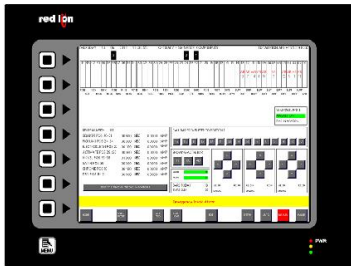
The **Optigalv®** system is composed of a touch panel (**HMI**), a programmable logic controler (**PLC**), an Ethernet network for data communication and connection to your local area network (LAN). The PLC reads/writes your plant analog and digital inputs/outputs (I/O) either by direct wired connections or via a fieldbus network (Profibus). Our software solution is integrated woth in the HMI and the PLC.
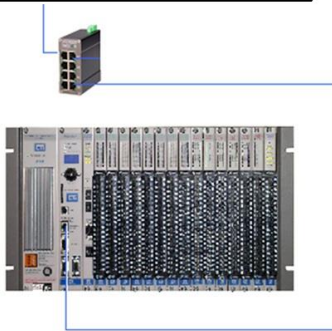
Optigalv® allows **secure** remote connection via **VPN** (virtual private network). Our **NAPA support team** will be able to visualize your HMI graphics and debug problems without moving to site, even if a HMI or PLC modification is involved. You too will be able to remotely connect to your production line whenever you are away from the plant.

Optionally, **Optigalv®** allows sending **SMS** when an alarm occurs (or just when a ligne stops). This way you can promptly react even if your are not on the plant floor.

Production line example
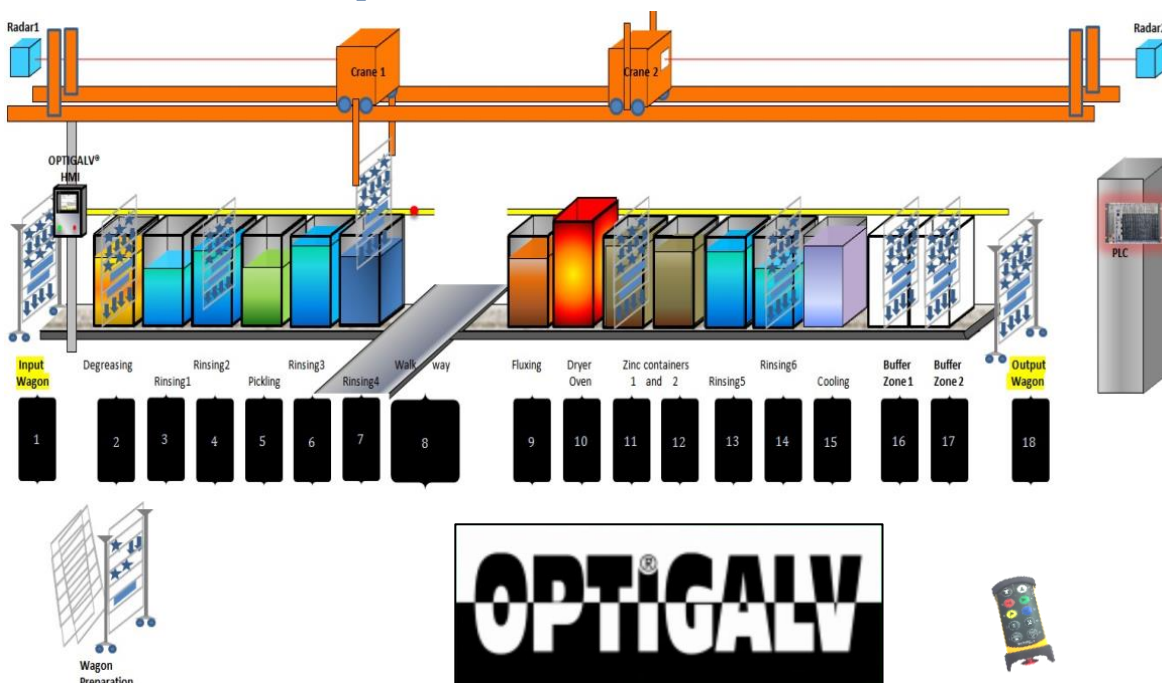
Services et support

NAPA International France is responsible for :

- defining your initial requirement
- interfacing with other contractors (electricity, mechanical and metal workers, safety related consultant...)
- configuring **Optigalv®**
- testing and commissionning

- helping designing the first production recipes
- training the operators (short duration)
- supporting you on the phone or via remote connection
- supporting on site if required
- consulting services for further evolution of your plant

With **Optigalv®** modern and intelligent surface treatment automation is available to you to smooth your production, make it more flexible while allowing time and money savings.

We can quickly simulate your plant operation with **Optigalv®** to help you understand what improvement our system can bring to your production process.

Call +33 04 93 20 93 93 if you wish to see a demo and get a live experience with **Optigalv®**. For more information, send your questions to **support@napa.fr**

References

- Budweg Caliper A/S (galvanization) : brake calipers
- Chem-Tec Plating A/S (anodizing, electroplating of gold, silver, tin, nickel – chemical or electrochemical, chrome – bright, mat, black ...) : automobile, electronics (mobile phones), electrical control panels, medical equipment...
- Esbjerg Galvanoindustri (chemical pickling, chemical polishing and electro-polishing, galvanization) : food and beverage, mechanics, offshore industry...
- Georg Jensen Sølvsmedje (electroplating of gold, silver, tin, nickel, palladium, chrome, ...): jewels, watches, cutlery, home artifacts
- GPV-Group (aluminum anodizing, ...) : army, transport
- ITW Screws, ex NKT (galvanization, ...) : screws and anchors
- Medzes components in Latvia (nickel, chrome, ...) : industry and hospital furniture
- Nordic Overfladebehandling A/S (all surface treatment such as galvanization, nickel, chrome, tinning...): all industries
- Roskilde Galvanisering (galvanization, alcalin nickel, passivation...) : all industries
- Stjerne-Chrom (aluminium anodizing, pickling, tinning, nickeling, passivation, électro-polishing, black oxidizing, galvanization, ...) army, all industries
- Sydjydsk EL-Galvanisering a/s (passivation, electro-chroming) : audio electronics
- Tajco Group (galvanization) : high quality exhaust trims