



First choice in surface treatment solutions

Welcome to Candor Sweden, leading
supplier of equipment and processes for
the surface treatment industry.

 **candor**

Welcome to Candor, leading supplier of surface treatment solutions.

The Candor Group manufactures and supplies special chemicals, metals and equipment for the surface treatment, metal work and electronics industry. We are a leading manufacturer of plants designed for the continuous plating of wire and strip, conventional electroplating and water purification.

Our core values

Flexibility

Our business is focused on meeting the specific needs of our customers. With a global reach and continuous research and development, we aim to be a versatile long-term partner.

Creativity

Our unique, integrated team of chemists and engineers deliver cutting-edge, tailor-made processes and equipment for the surface treatment industry.

Autonomy

With independent manufacturing in Sweden, we are able to provide fast, flexible and cost-efficient solutions to meet the ever-evolving demands of our customers.

Candor develops, manufactures, and markets solutions for the global surface treatment industry

Our business segments combined enable us to provide a unique “one stop shop” solution for chemical processes, plants and anode metals. Candor is committed to high standards of quality and sustainability, thus safeguarding our customer’s processes and operations.

Our multifaceted business segments

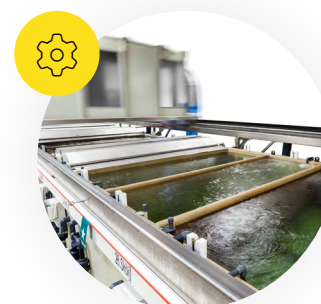
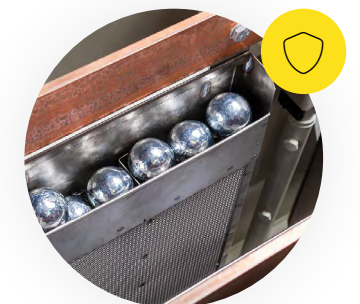


Chemical processes

Candor manufactures chemicals and processes for the surface treatment industry. Our product portfolio includes both self-manufactured products and those supplied by leading international partners. Our laboratory and in-house production is what gives us an innovative edge.

Anode metals

Candor delivers metals for surface treatment and soldering. Our products are of the highest quality and are sourced from leading suppliers worldwide. Our product portfolio comprises nickel, zinc, copper, tin, and soldering tin with different alloys.



Plants

Candor develops and manufactures plants for continuous metal coating of wire and strip, conventional surface treatment and waste water treatment. Our plants are modular and adaptable to the customer’s specific business and operational needs.

We strive for high quality, safety and sustainability.

Candor is one of the leading suppliers to the surface treatment industry, where expectations and demands are high when it comes to expertise, quality and environmental awareness. We aim to use our competence, know-how, and experience to assist our customers in choosing the best process and equipment in accordance with best praxis as well as current quality and environmental standards, guidelines and requirements.

To ensure our high standards are met now and in the future, we conduct our business with the greatest possible consideration for quality and sustainability, as well as the health and safety of our staff. This means we continuously work together to create and maintain a good working environment, which in turn ensures that our customers are provided with a high level of expertise, engagement, and service.

Our focus is on sustainable growth.

- We shall foster a culture where all issues surrounding health and safety can be openly discussed.
- We shall provide our staff with equitable opportunities for learning and development.
- We shall not manufacture, handle, use, transport or dispose of any products or materials unless we can do so safely and with due regard for environmental impact this would entail.
- We shall continuously educate both ourselves and our customers on developing sustainability practices.



Learn more about our sustainability practices at candorsweden.com

Our quality and sustainability practices are ISO certified.

We at Candor believe that quality and environmental awareness must be a part of our core values in order for our company to be successful. For you as a client this means reliable, high-performance and environmentally-friendly equipment and processes delivered on time, every time.

Candor is certified according to:

- [ISO 14001:2015](#)
Environmental management systems
- [ISO 9001:2015](#)
Quality management systems

Worldwide reach through Scandinavian subsidiaries and global representatives

Candor belongs to the industrial group [Latorp AB](#) and has its production facilities and head office in Norrköping, Sweden.

Sweden

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Custom plants for custom surface treatment needs.

Candor develops and manufactures plants for continuous metal coating of wire and strip, conventional surface treatment and waste water treatment.

Our plants are modular and can be adjusted according to your needs when it comes to the number of wires, wire material and dimensions, speed, and space available. The Candor standard includes components from well-known suppliers with the possibility to use the customer's brand of choice.

Explore our offer

- Metal coating of wire and strip in stainless and carbon steel, copper and its alloys, or other materials
- Ultrasonic cleaning and electrolytical degreasing
- High-speed electroless and electrolytical copper coating for high-quality welding wire
- Waste water treatment
- Accessories and spare parts
- Custom solutions

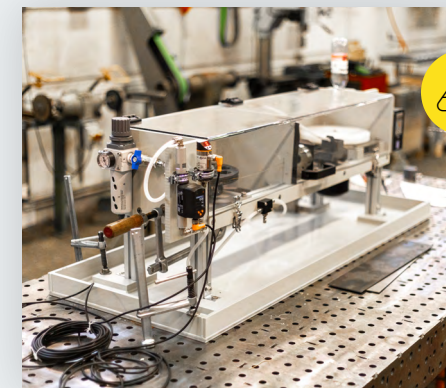
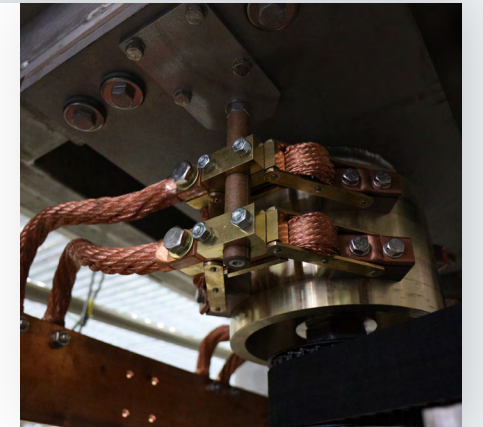


Learn more about our solutions, including our other business segments, and download individual product sheets by visiting candorsweden.com



We assemble all our machines in-house. Before delivery, we thoroughly test each component, which minimizes the risk of problems for our customers on-site. The customer is present when these tests are carried out and the machine is considered complete only after their approval.

Part	Note
Tank	Leakage test <input checked="" type="checkbox"/>
Pump	Run and leakage test <input checked="" type="checkbox"/>
Heater	Function checked <input checked="" type="checkbox"/>
Temperature control	Function and program tested <input checked="" type="checkbox"/>
Overheating protection	Function and program tested <input checked="" type="checkbox"/>
Inductive sensor	Function and program tested <input checked="" type="checkbox"/>
Solenoid valve	Function and tuning <input checked="" type="checkbox"/>



In our lab, we perform various tests for our customers. For example, we can simulate potential methods for the requested process and specify optimal conditions. This provides data and documentation for future use, and also serves as a quality assurance for our products.

A selection of our in-house testing equipment:

- Atomic absorption spectroscopy
- Spectrophotometer
- CVS
- X-Ray Fischer
- Colorimeter
- Equipment for water treatment techniques

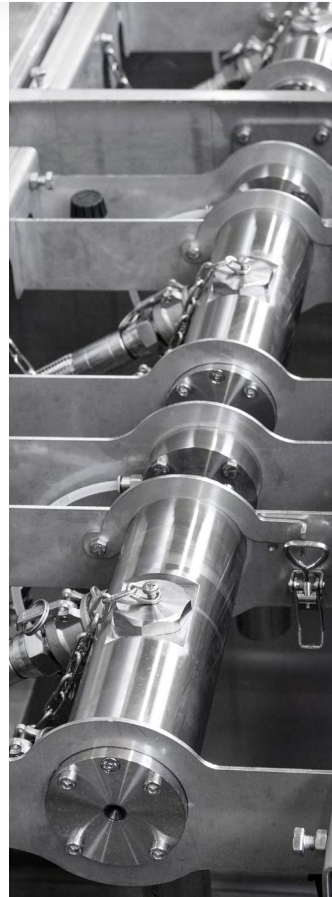


Candojet

A compact, highly efficient hot water cleaning unit for single wire applications at high speeds. It removes lubricants from the wire surface without using any aggressive chemicals and it works well with different wire diameter and wire materials. There are two versions available, Candojet HW2 and HW211.

The larger HW211 consists of four cleaning cells divided into three sections: one precleaning section and two rinsing sections. The cleaning liquid is pumped into the cells with a high flow rate and relatively high pressure.

Candojet is often placed in line with other production equipment, such as in-line with a drawing machine, between the last block and the spooler or as pre-cleaning prior to plating.



Technical data

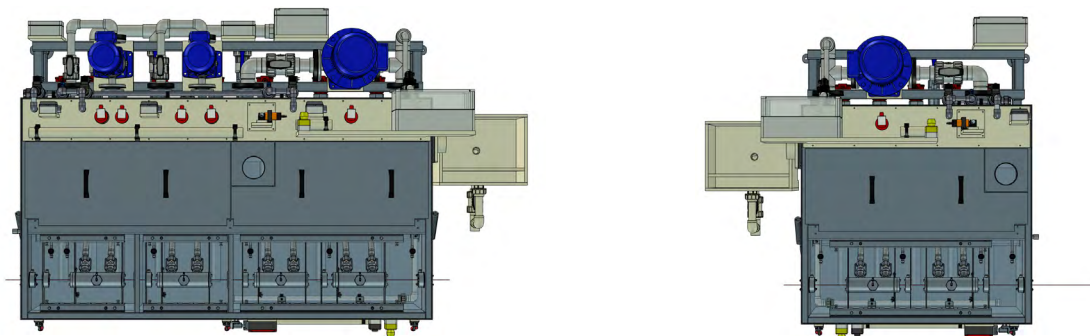
Wire dimension:	∅ 0,2 - 6,0 mm
Speed:	< 30 m/s
Residuals to remove:	Sodium, emulsion and oil
Working temperature:	< 90°C
Water consumption:	Approx. 80 - 120 l/h
Compressed air:	< 6 bar

Configurations

Application:	Round or shaped wires
Skimmer	Automatic foam and sludge removal system
Optional features:	Ultrasonic section
Filtering:	Bag, belt or cartridge filter system

Process sequence

1. Hot water jet cleaning → 2. Air wiping



* The following plant designs and process sequences are based on requirements for a specific project. They can therefore be interpreted as a schematic proposal, which can be modified for other capacities.

Candocoat

An in-line lubricant carrier coating unit to be placed in front of wire dry draw machines in order to enhance wire lubrication in the dry draw process.

The unit will clean the wire with high pressure hot water in order to remove loose particles from the wire surface. The rinsing water is continuously filtered and metal particles are collected by a magnet filtering system. The coating section is able to handle modern lubricant carriers available on the market as well as common borax carriers.

The Candocoat unit is equipped with a special coating pump and heating arrangement that will allow a trouble-free operation even with difficult lubricant carriers that tend to crystallize. The dryer is effective with a two-step system to ensure dry uniform coating without the risk of overheating the wire.

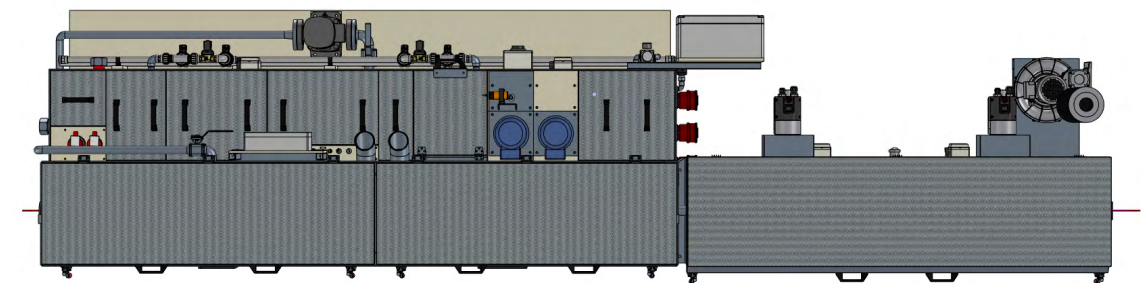
Technical data

Wire material:	Carbon steel and stainless
Wire dimension:	∅ 5,5-12 mm
Wire speed:	2-4 m/s



Process sequence

1. Hot water jet cleaning → 2. Wet coating → 3. Drying



High speed single wire plating

The Candor high speed electrolytic wire plating plants are designed with an advanced high current density plating cell where a uniform current distribution to the wire is achieved.

The wire is cleaned and activated with different processes depending on wire material and type of plating. To achieve more immersed length for the wire in the activation, degreasing and plating section, the wire is looped several times.

Motors are used to ensure wire tension and a good contact between the wire and the contact roller. All plants are custom designed to be adapted to the required capacity, wire dimensions, speed and space available. The plant can be placed straight or in a L- or U-shaped layout.

The entire plant is covered and ventilated. A mist separator ensures that clean air is released into the environment.



Silver plating

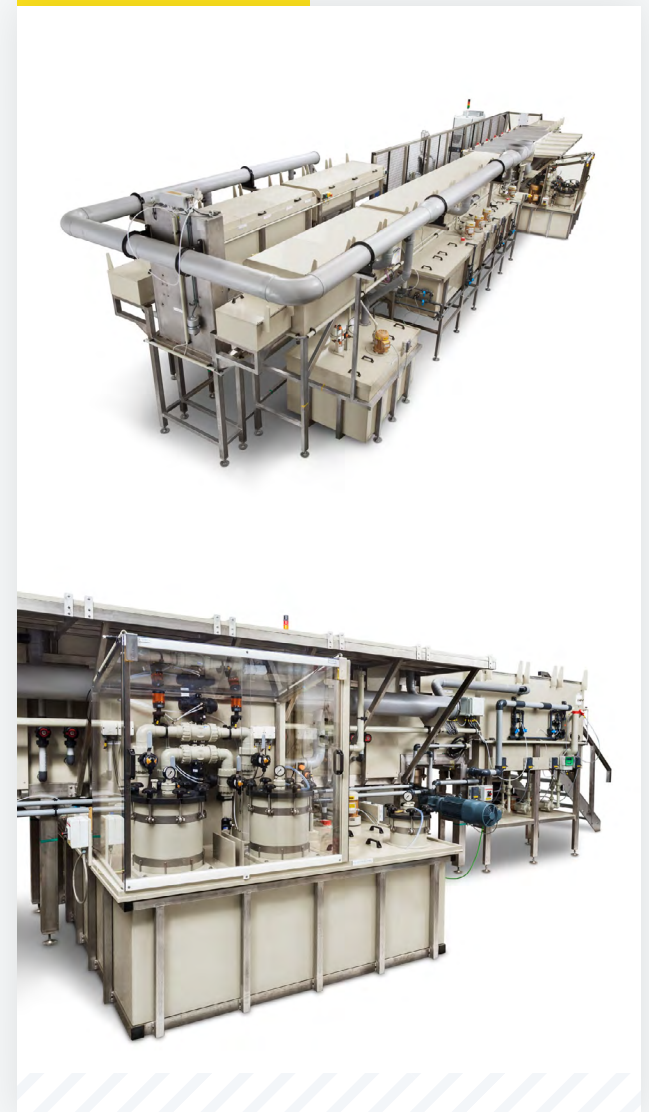
Silver offers extremely high conductivity and reduces the resistance of plated wire. This is particularly beneficial in high frequency applications because the skin effect will result in increased current flow through the silver. Additionally, silver plating copper will increase high temperature performance and generally improve chemical resistance.

Process highlight

To get good adhesion and avoid chemical deposits, you first apply a thin coating layer in a high cyanide, low silver content bath - also known as a silver strike.

In the next process, the wire is plated by looping it 25 times, resulting in an increased amount of submerged wire. The content of the silver plating bath is low cyanide and high silver.

System photos



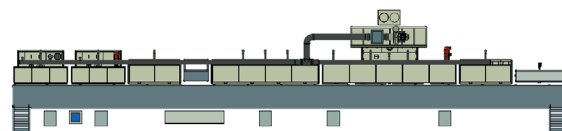
Technical data

Wire material:	Copper and copper alloys
Plating material:	Nickel, Silver, Tin & Zinc
Wire dimension:	∅ 0,3 - 3,0 mm (LOOP type) ∅ 3,0 - 13,0 mm (STRAIGHT type)
Speed:	< 900 m/min

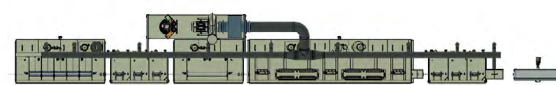
Configurations

Current density:	Adjusted according to process
Plating length:	112m, 153m, 178m (alt. 224m, 306m, 356m)

Plant designs



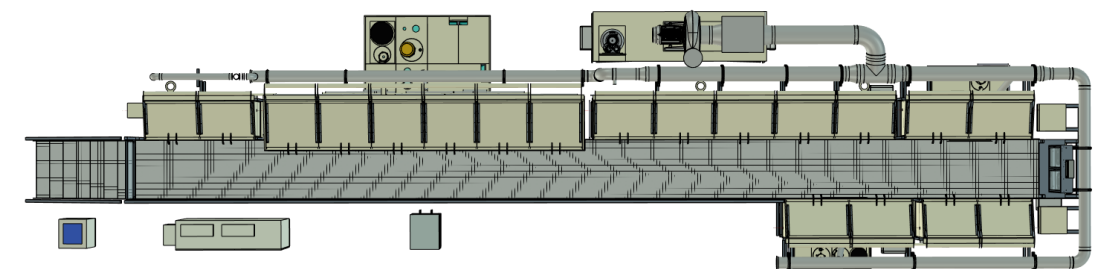
Loop type plant: For high speed and fine wires



Straight type plant: For heavier wire dimensions

Process sequence

1. Degreasing → 2. 4-step rinse → 3. Dancer → 4. Etch process → 5. Anodic clean ...
- 6. 2-step rinse → 7. Silver strike → 8. Silver plating → 9. 4-step rinse



* The following plant designs and process sequences are based on requirements for a specific project. They can therefore be interpreted as a schematic proposal, which can be modified for other capacities.

Nickel plating

Nickel plating is applied to wire products due to its excellent corrosion resistance properties and in particular, its durability and stability at extremes of temperatures.

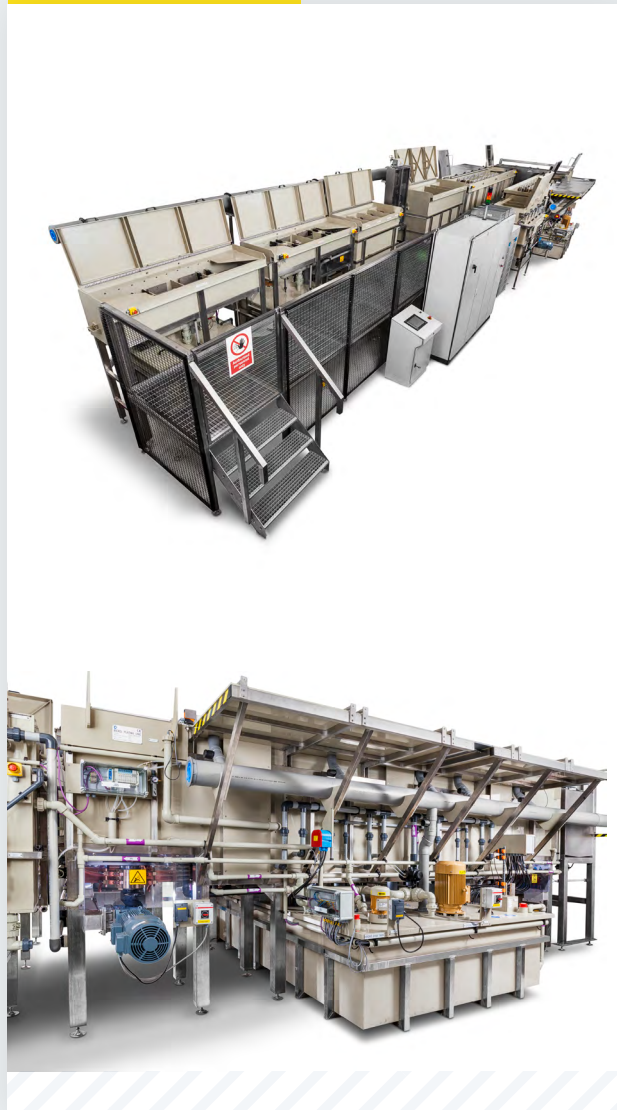
27% nickel plated copper is used in a wide range of applications such as aerospace, military and industrial products.

Process highlight

Degreasing is performed in a cell where the wire is looped between revolving pulleys, adding up to a submerged wire length of 12 m. The electrolyte is an alkaline process, which is heated up with electrical heaters to 60-70°C.

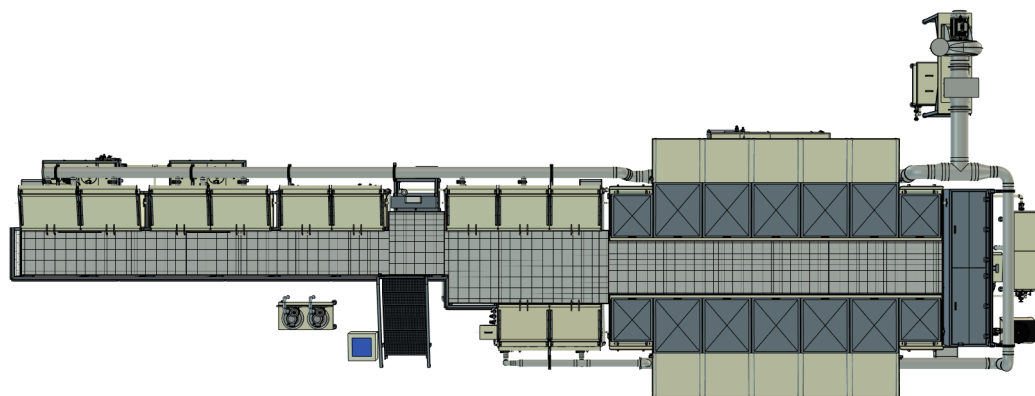
The cell electrodes, made of solid nickel, are connected to the rectifier in a bipolar system. With this technique it is possible to feed the electrical current to the wire without using contacts.

System photos



Process sequence

1. Degreasing (rough) → 2. Degreasing → 3. 4-step rinse → 4. Dancer → 5. Activation ...
→ 6. 2-step rinse → 7. Nickel plating → 8. Dancer → 9. Nickel plating → 10. 4-step rinse



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Tin plating

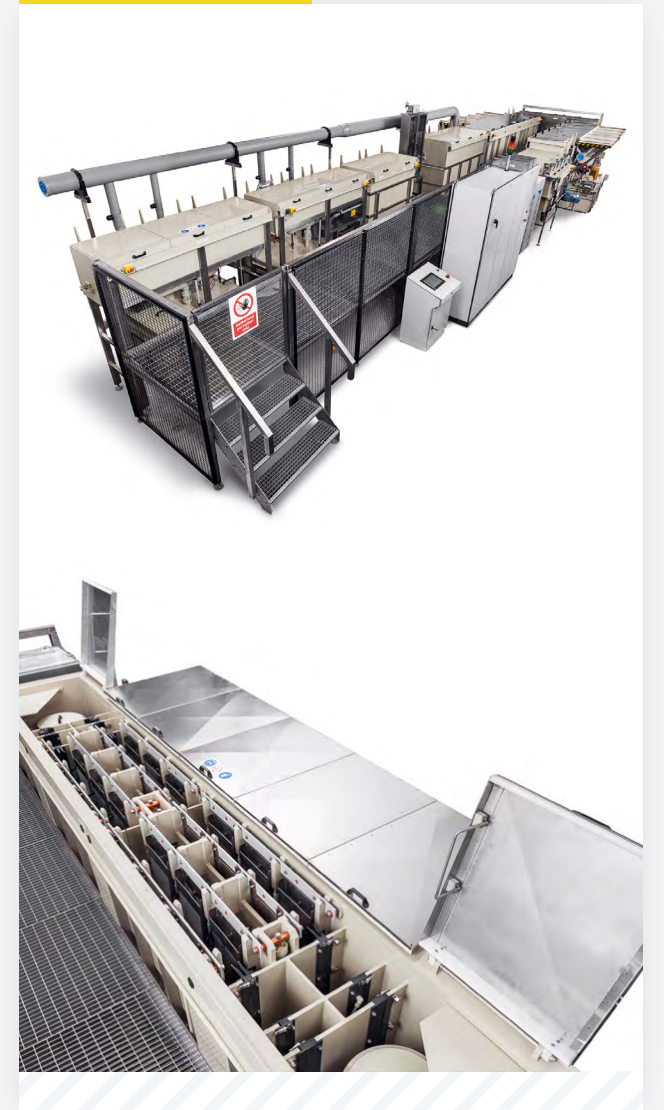
Tin plating offers high corrosion resistance, especially in humid and high-temperature environments. Additionally, it extends cable life and provides easy solderability.

Process highlight

The first and second rinse after the tin plating, are recovery rinses to save plating solution. The rinsing water contains diluted tin electrolyte and is fed back to the plating solution to compensate for the drag-out and evaporation.

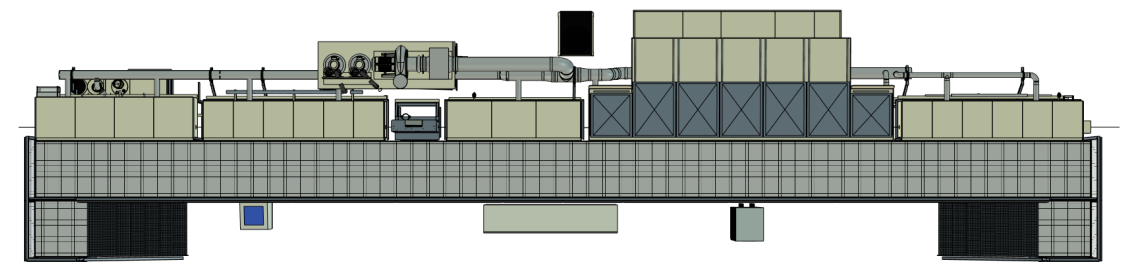
The following five rinses after plating consist of separate compartments which use the cascade rinse flow to save water. Between each rinse step the wire is rinsed off with air in our patented air wiping system Candowipe.

System photos



Process sequence

1. Degreasing → 2. 7-step rinse → 3. Dancer → 4. Acid activation → 5. Tin plating ...
→ 6. 7-step rinse

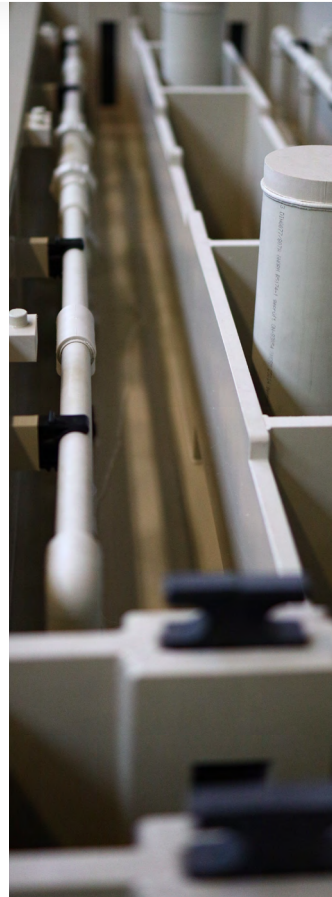


Copperjet

The Candor Copperjet is a high-speed copper coating plant for high-quality welding wire of various kinds, such as CO2, FCW and SAW and other copper coated wires. The plant is normally placed in line with a drawing machine followed by a skin pass.

It is mainly built of polypropylene plastic and placed on a stainless steel frame with adjustable feet. The plant is modular and adaptable to fit your wire quality and productivity needs.

Copperjet is available in both straight and loop type versions depending on application.

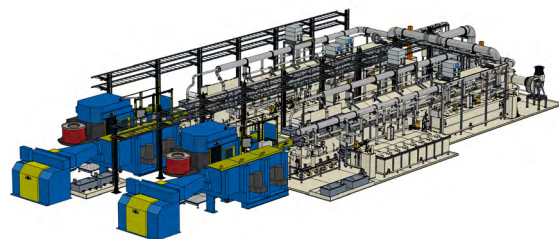


Technical data

Wire material:	Low carbon steel
Plating material:	Copper
Wire dimension:	Ø 0,8-1,6 mm - Loop type Ø 1,6-5,0 mm - Straight type
Speed:	< 30 m/s - Loop type < 15 m/s - Straight type

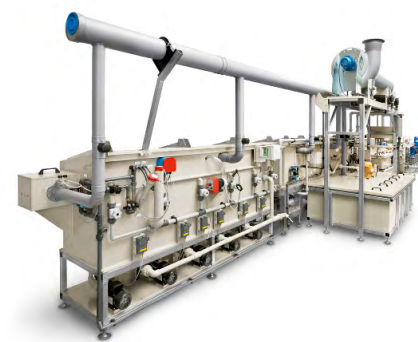
Process sequence

1. Candojet HW211 →
2. Electrolytic bipolar pickling
3. Copper plating - Loop type →
4. 5-step rinse



High speed copper plating plant for the automotive industry

System photos

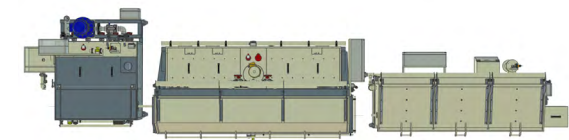


Configurations *

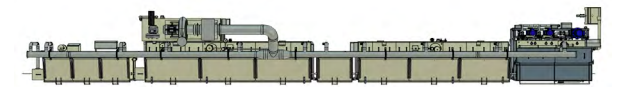
Pressure sensor for Candojet pump	For indication of maintenance interval based on low/high pressure
Cam-Lock quick connections system	For easier removal of Candojet cells for maintenance
Water breaks for Candojet cells	For reducing the amount of drag-out
Heating for bi-polar pickling	Added heating for increased cleaning effect (includes temp sensor)
Ceramic inserts for air wipers	Longer lifetime than standard plastic inserts
Electrode material for pickling	Titanium/MMO-coated titanium
Stainless steel solenoid valves for water filling	If incoming water is processed in ion-exchanger stainless steel valves are required
Filtering systems	- Band filter for Candojet - Stand-alone filter unit with pump for removing particles - In-tank filter for removal of stearates
Chemical dosing system	System for semi-automatic dosing of process chemicals

* More adaptations and customizations can be made on request.

Plant designs



Loop type plant



Straight type plant

Copperjet with horizontal looping pulleys

The looping pulleys are placed in a horizontal position to offer a comfortable and approachable threading of the wire.

The copper section has two upper treatment troughs, where the wire is copper coated, and one lower storage section where the copper solution is kept.

System photos



* The following plant designs and process sequences are based on requirements for a specific project. They can therefore be interpreted as a schematic proposal, which can be modified for other capacities.

Ultrasonic cleaning for multi and single wire

The plant makes use of cavitations in an aqueous solution for great cleaning effectiveness. This reduces or eliminates the need for strong chemicals. Wire, cables, rods and items that may be difficult to clean by other processes are ideal for ultrasonic cleaning.

This pretreatment method has the following advantages:

Non-destructive:

The method uses high-frequency sound waves for delicate yet powerful cleaning.

Precision cleaning with intricate reach:

Ideal for small, intricate parts and tight spaces.

Eco-friendly:

Mild solutions reduce the use of harsh chemicals and their environmental impact.

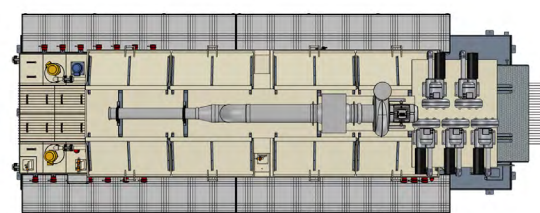


Technical data

Wire material:	Low and high carbon steel, stainless steel, copper and copper alloys
Wire dimension:	ø 0,3 - 12,00 mm
Wire speed:	< 300 m/min - Multi wire < 20 m/s - Single wire
Residuals to remove:	Dry drawing lubricants, emulsion and oil

Process sequence

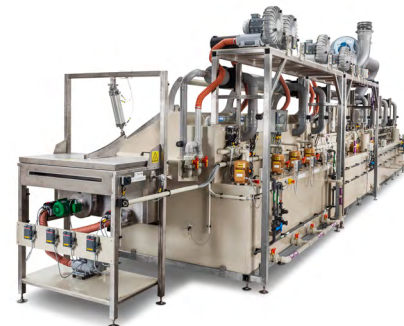
1. Ultrasonic cleaning → 2. Rinsing → 3. Drying



System photos



Multi-wire



Multi wire

Electrolytic degreasing for multi and single wire

Our multi-wire cleaning plant cleans the wire very efficiently with a well-proven bipolar electrolytic process. The plant can be used with alkaline, acidic or neutral processes.

The alkaline process is used mainly to remove drawing lubricants from the wire. A typical installation is in front of an annealing furnace. The acid process is intended for the removal of oxides and lubricants.

After degreasing, the wires are rinsed in an efficient counter flow rinsing system, then dried off in a hot air drying system.

System photos

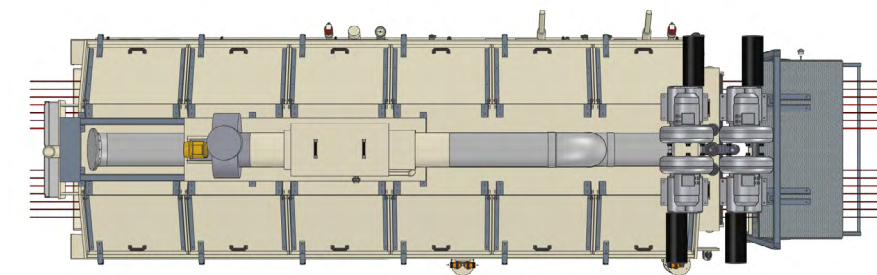


Technical data

Wire material:	Low and high carbon steel, stainless steel, copper and copper alloys
Wire dimension:	ø 0,3 - 12,0 mm
Wire speed:	< 300 m/min - Multi wire < 20 m/s - Single wire
Residuals to remove:	Oxides, dry drawing lubricants, emulsion and oil

Process sequence

1. Electrolytic degreasing → 2. Rinsing → 3. Drying



* The following plant designs and process sequences are based on requirements for a specific project. They can therefore be interpreted as a schematic proposal, which can be modified for other capacities.

Nickel and copper plating on stainless steel wire

Our multi-wire plating plant is custom built and adapted to the required capacity, the number of wires, wire dimensions, speed and space available.

The plant is mainly built of propylene plastic placed within a stainless steel frame with adjustable feet. Different wire sizes can be plated in the same plant. Each wire strand is individually controlled by separate rectifiers and pumps. The plant is covered and ventilated. A mist separator ensures that clean air is released into the environment.

System photos



Technical data

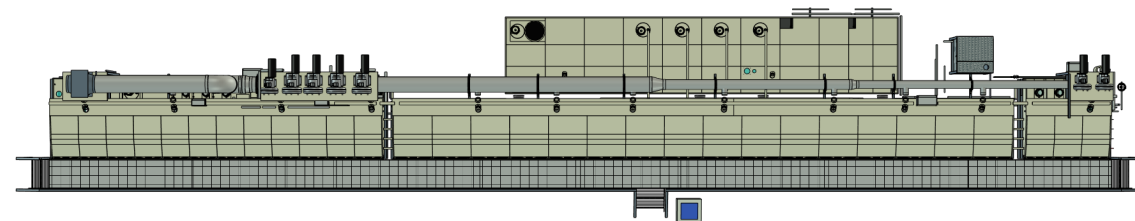
Wire material:	Stainless steel High carbon steel
Plating material:	Nickel & copper
Plating thickness:	1-3/1000 part of diameter - SS wire 15 micron - HC steel wire
Wire dimension:	Ø0,3 - 2,0 mm - LOOP type Ø2,0 - 13,0 mm - STRAIGHT type
Speed:	< 200 m/min.

Configurations

Current density:	Adjusted according to process
Plating length:	Depending on production requirements
Combined plant:	For production of stainless steel and high carbon steel

Process sequence

1. Electrolytic bipolar cleaning → 2. 3-step rinse → 3. Ni-strike → 4. 2-step rinse ...
→ 5. Nickel plating → 6. 3-step rinse → 7. Hot rinse



* The following plant designs and process sequences are based on requirements for a specific project. They can therefore be interpreted as a schematic proposal, which can be modified for other capacities.

Waste water treatment plants tailored to your needs

Candor offer various types of waste water treatment plants. With these technologies it is possible to treat the continuous rinse water flow from the plants as well as treat dumped chemical process baths.

Typical types of plants are:

- Vacuum evaporator technology to evaporate the water and separate it from the chemicals.
- Traditional waste water treatment via neutralizing and separation processes.

All plants are tailor-made for each separate project to best fit the specific rinse water flow and type of chemicals involved.

System photos



Vacuum evaporator system



Accessories and spare parts

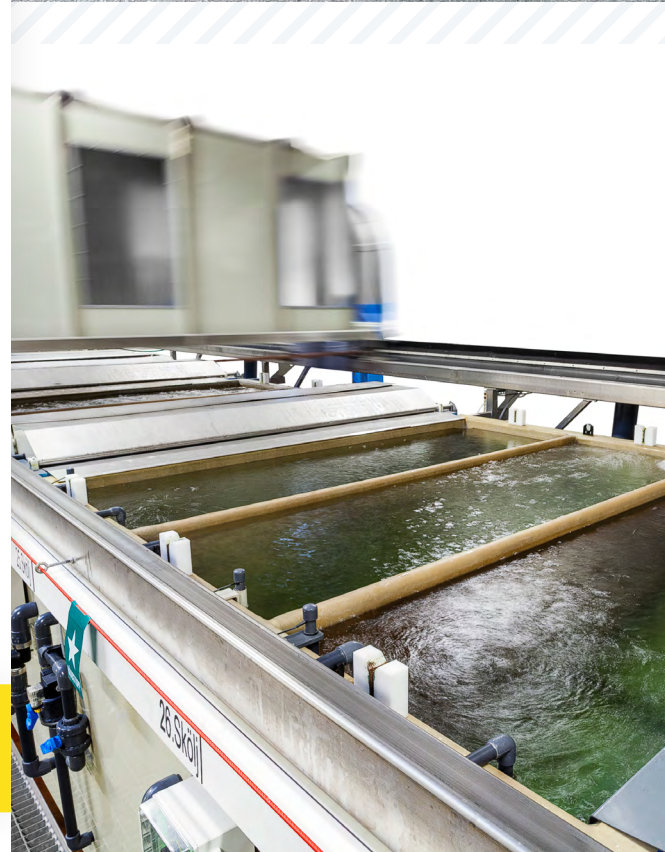
Candor offers a wide range of spare parts for both our own plants and those of other companies. With our large network of suppliers we look forward to helping you find just the part you need.

Candor provides both tailor-made parts and standard components of various types, for example:

- ✔ Tailor-made parts based on our own or your designs.
- ✔ Heaters, level guards and temperature controls.
- ✔ Pumps, stirrers and filtering equipment.
- ✔ Filter bags, filter paper and cartridges.
- ✔ Rectifiers and anode baskets.
- ✔ Ventilation fans, mist eliminators and scrubbers.
- ✔ Motors and gears.
- ✔ Hull cells and other laboratory equipment.



Contact spareparts@candorsweden.com about your spare parts needs!



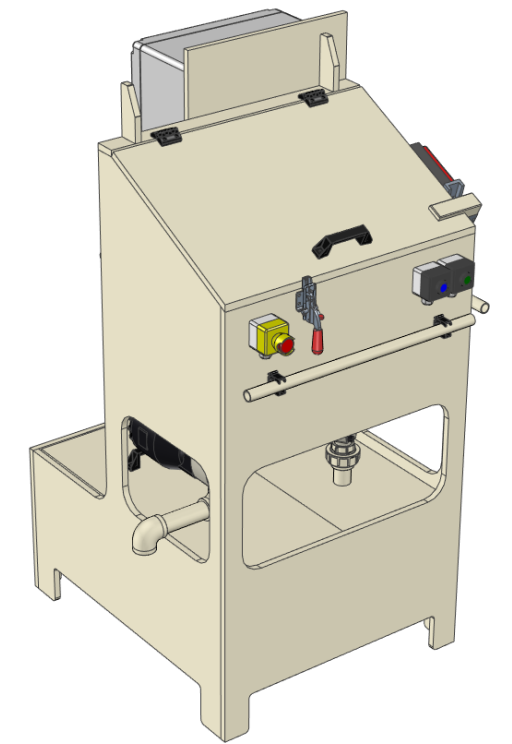
Candojet cell wash

The Candojet is a highly efficient cleaning machine, yet all dirt and residue must nevertheless go somewhere. The cleaning cells are the most exposed component of the Candojet and are vital for its performance. It is very important that your critical equipment remains functional and operates at its optimal level, which is why Candor has developed a machine to clean the Candojet cells.

The Candojet cell wash is an automatized cleaning system that:

- Prolongs the lifespan of your cells
- Improves the cells' cleaning potential (makes them more efficient)
- Reduces downtime
- Complements Candojet efficiency

System photos



Configurations

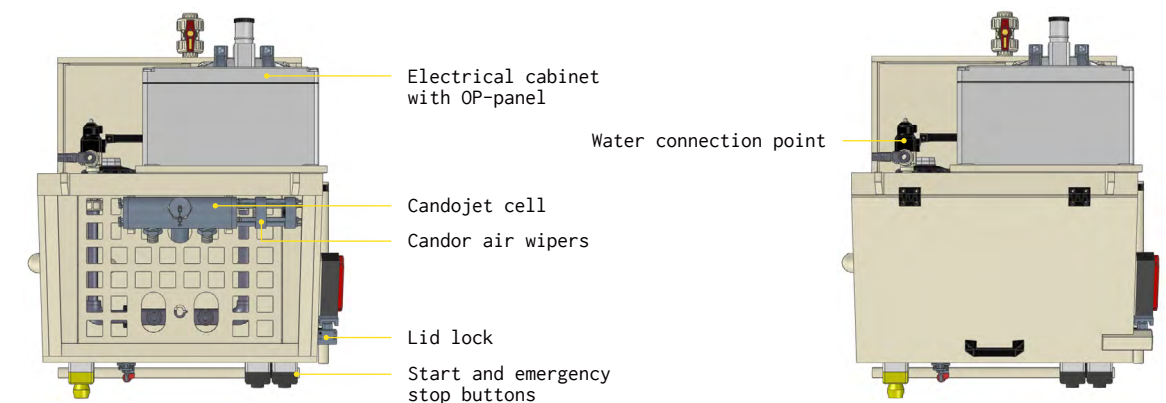
Single or multiple cells washing simultaneously

Heating in cleaning tank to reduce cleaning time and increase cleaning efficiency

Height and size to fit your plant

Filter systems and attachments for cleaning Candor air wipes

System illustration



Our plants can be tailored to your surface treatment needs.

We at Candor want to help you find the right surface treatment solution for your business. Our plants are modular and can be adjusted according to your needs when it comes to the number of wires, wire material and dimensions, speed, and space available.

Example plant configuration

Candojet HW211	→	Electrolytic bipolar alkaline degreasing	...		
→	Rinse x 5	→	Electrolytic bipolar acid pickling	...	
→	Rinse x 2	→	Copperjet High Speed	→	Rinse x 5

Vertical de-spooling

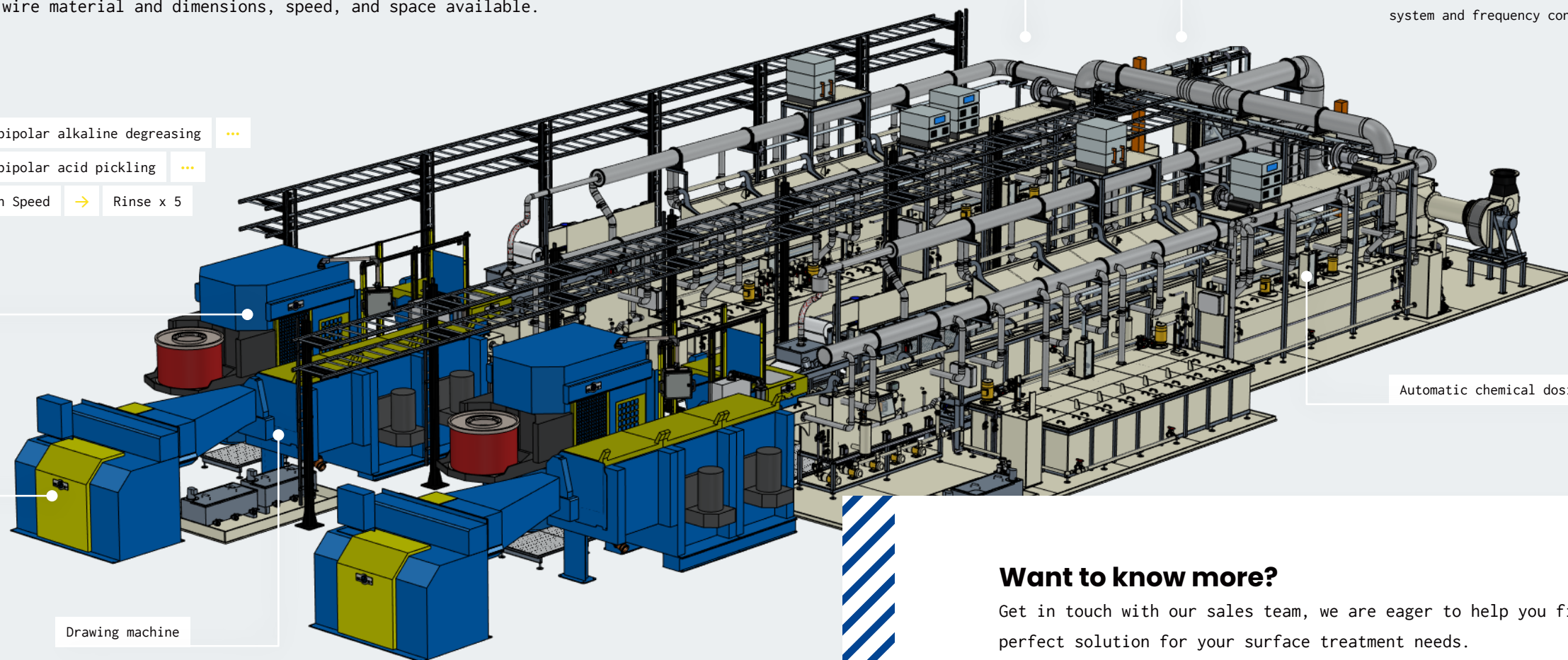
DSPMV 1000/750

Horizontal spooling machine

SPMH 1000/750

Drawing machine

DMSP 2 x 500



Chemical process

Pretreatment: CANDOCLEAN RP, CANDACID US
Copper plating: CANDOR KFS + E1
 Pre-mixed copper sulphate with inhibitor E1 for best possible adhesion and final quality

Integrated ventilation system

A combined ventilation system for two production lines consisting of adjustable exhausts from each process tank, highly efficient scrubber system and frequency controlled extraction fan.

Automatic chemical dosing system

Want to know more?

Get in touch with our sales team, we are eager to help you find the perfect solution for your surface treatment needs.

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All of our plants feature an efficient multi-step counterflow rinsing system with thorough air wiping after each step, which ensures low water and chemical consumption.



Welcome to Candor Sweden, leading supplier of equipment and processes for the surface treatment industry.



Explore Candor

Learn more about our solutions,
visit candorsweden.com