



SUSTAINABILITY GUIDE: MAKE EVERY DROP COUNT

How spray technology helps to
meet the sustainability goals of
industry leaders around Europe



Spraying Systems Co.[®]

Experts in Spray Technology



Sustainability: At the core of what we do

Spraying Systems Co. has focused on sustainability since our founding in 1937. Back then, it was described as saving our customers time, money and energy, now we call it sustainability.

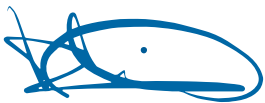
As a global market leader, we have a major impact on the environmental footprint of a diverse set of industries. With over 200 billion liters of chemicals and water flowing through our products every day, we have a responsibility to help our customers to be more efficient with their resources.

Over the past 80 years, we have been perfecting our approach to spray technology by developing innovative products that can efficiently handle even the most challenging spray applications. Spraying Systems specially trained sales engineers work closely with our customers to identify and capitalize on opportunities that decrease environmental footprints and increase profits. This ongoing focus has made us a reliable partner to empower organizations to meet their sustainability goals.

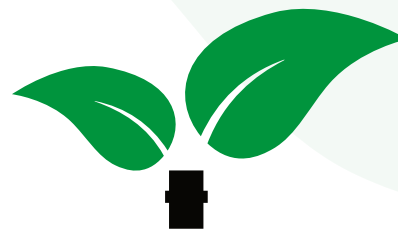
In this bulletin, we have listed 7 tips that can help businesses, in any industry, to be more efficient in their production processes and help them to “Make Every Drop Count”.



Raoul De Winne



Co-CEO
Spraying Systems Co.



Spraying for the Future





1 SELECT THE RIGHT NOZZLE

“Select the right nozzle “ - it sounds obvious - but each year billions of litres of chemicals and water are wasted by using the wrong nozzles for an application. At Spraying Systems Co. we have thousands of different nozzles to choose from in a wide variety of categories:

- Standard nozzles (Full cone, flat spray, hollow cone, ...)
- Air Atomising nozzles
- Automatic nozzles
- Air nozzles (Compressed or blower air)
- Spray Guns
- Tank Cleaning nozzles
- SprayDry® nozzles
- High Pressure nozzles
- Special Purpose nozzles
- ...

With such a diverse range it is easy to get lost in the different capacities, flow rates and spray angles. Even when the perfect fit is available, we find that many times it is tempting to select a higher capacity nozzle “just to make sure”. However, since over 200 billion litres flow through our products every day, even a slightly higher capacity nozzle can have a huge impact on the amount of resources that are being used.

Our R&D team is constantly looking into new technology to improve the efficiency of existing nozzles and replace traditional spray products with completely new, more sustainable, alternatives, for example: our PulsaJet® nozzle can replace traditional air atomising nozzles giving a better spray result at a lower energy cost.

To help select the right nozzle we advise contacting your local spray expert for a full spray assessment. The experience and knowledge of the Spraying Systems’ expert will guarantee you’ll find the perfect nozzle for your specific application and help you reach your sustainability goals.

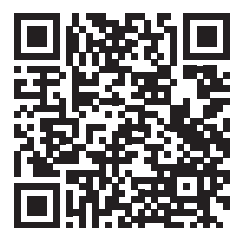
MORE INFORMATION



**VIDEO: LOW FLOW RATES
WITHOUT
COMPRESSED AIR**

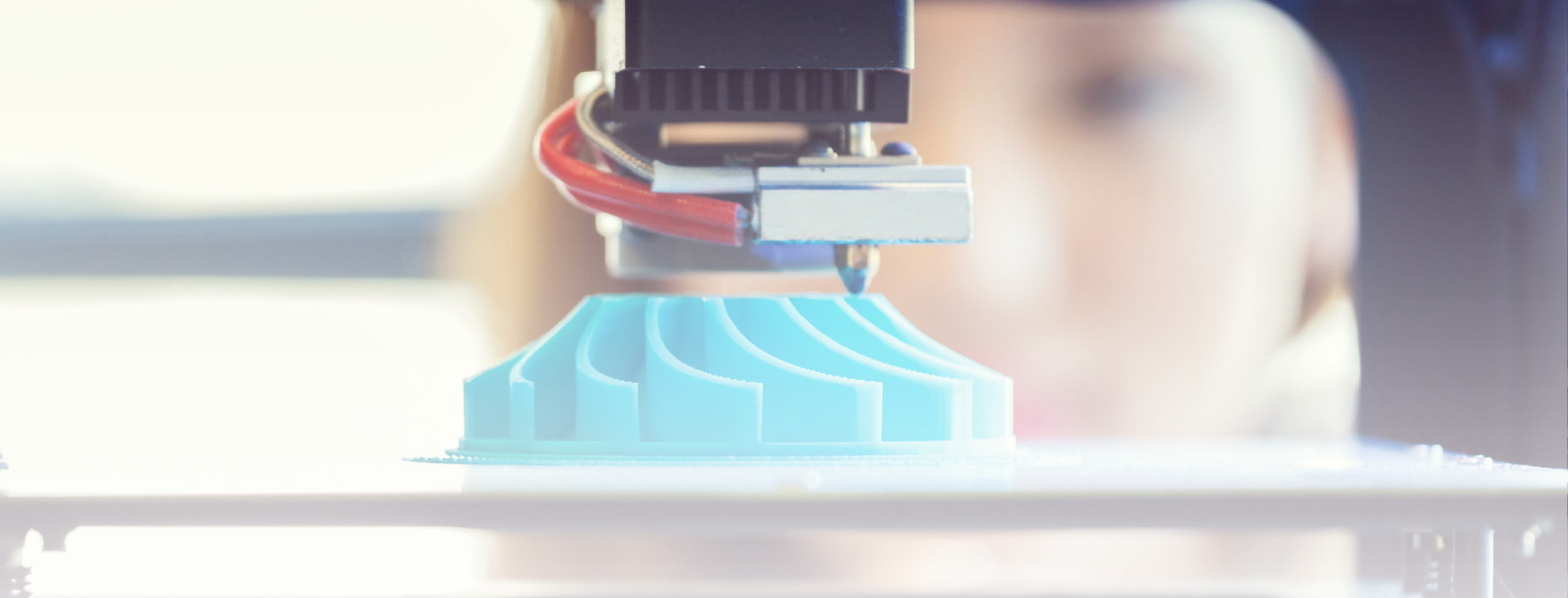


NOZZLE CAD FILES



**CONTACT YOUR LOCAL
SPRAY EXPERT**





CAPITALIZE ON THE LATEST MANUFACTURING TECHNOLOGIES

2

At Spraying Systems we have been investing in the latest manufacturing technologies since our founding over 80 years ago. To remain the world's largest nozzle supplier, it is essential we bring on new technology that can help us to improve our products and deliver better results to our customers.

Starting with traditional lathes, we progressed to adding CNC and automatic chucker machines to give our customers the highest quality spray nozzles for their demanding applications. This subtractive manufacturing process continues to develop, and we will continue to invest in the highest quality machinery. But we haven't stopped there.

Lately we have also seen the emergence of a totally new manufacturing approach: additive manufacturing. This new approach, arguably the biggest game-changer since the industrial revolution, makes it possible to add material rather than subtract from a larger piece. This opens a whole new world of possibilities to our designers with the potential to create radically new and exciting products. Because we can print metal, we can build a nozzle from the ground up, enabling us to design ever more complex chambers and internal flows.

As a direct consequence of using the latest manufacturing techniques, we are now able to design nozzles with improved pressure and atomization results. This is already saving valuable resources to customers around the world and is helping them to make their spray application a more sustainable part of their production process.

One of the first 3D printed nozzles that we are currently offering is the EcoFlomax nozzle. A new and improved FloMax® gas cooling nozzle that is 35% more efficient than the previous version.





3 CHECK ON NOZZLE WEAR

Proper maintenance is essential to your spray performance. Unfortunately, spray nozzle wear can be hard to spot - visual checks won't detect wear - and even small changes in performance can result in bad product quality and wasted water, chemicals and electricity. Replacing nozzles that are spraying just 15% over capacity can save millions of litres throughout your production process, so identifying them is key.

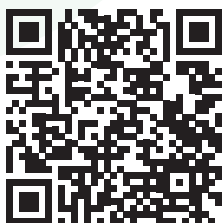
To identify worn nozzles you can look for the following clues:

- Quality control issues and increased scrap
- Increased maintenance time
- Flow rate change
- Deterioration of spray pattern quality
- Spray drop size increase
- Lowered spray impact

However, for optimal results it's advisable to set up a consistent evaluation plan where you periodically measure key spray factors such as flow rate, spray pressure (in nozzle manifold), drop size, spray pattern and nozzle alignment. Our specialists can help you set up a nozzle inspection program and help you determine the best nozzle maintenance and replacement strategy for your application. This will maintain optimal spray performance, control your operating costs and limit your ecological footprint.

To help you to get the most sustainable results from your spray nozzles we have published a free guide on nozzle wear. In the guide you will learn the basic principles for maintaining your nozzles to ensure you get the performance you need. Alternatively, you could also get a quick indication of your nozzle wear by using the nozzle wear calculator.

MORE INFORMATION



**SET UP A NOZZLE
INSPECTION PROGRAM**



NOZZLE WEAR GUIDE



**NOZZLE WEAR
CALCULATOR**





PRECISION SPRAY CONTROL

The Spraying Systems' AutoJet® systems are designed to accurately and efficiently control your spray applications. Combined with our automatic PulsaJet® nozzles this combination ensures the proper volume of liquid is sprayed exactly when and where it's needed and nowhere else.

4

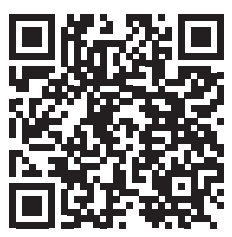
With Precision Spray Control (PSC), the AutoJet® controller turns the PulsaJet® nozzles on and off very quickly to control the flow rate – up to 25,000 times per minute. This cycling is so fast that the flow often appears to be constant. With traditional nozzles, flow rate adjustments require a change in liquid pressure, which also changes the nozzle's spray angle, coverage and drop size. With PSC, the pressure remains constant to enable flow rate changes without changes in spray performance.

By taking advantage of PSC you can save enormous amounts of resources, limiting your impact on the environment. Compared to a more traditional spray setup customers can easily halve their liquid use. There is also an increase in product quality thanks to a uniform and consistent application, even when line speed changes.

Using PSC ensures the transfer efficiency between our spray nozzle and your target is maximised. This also has a positive effect on collateral issues in a spray application, such as misting, slipping, clean down and excess waste.

To summarize Precision Spray Control helps you achieve huge savings and improves your production process. If you are looking to reach your sustainability goals PSC is probably the easiest and quickest ways to do it – many have gone before you.

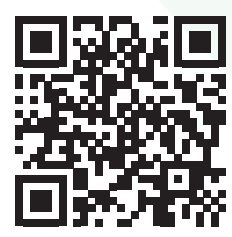
MORE INFORMATION




PRECISION SPRAY CONTROL VIDEO



LUBRICANT SAVINGS CALCULATOR



CASE STUDIES



5 AUTOMATED CLEANING

Millions of litres of chemicals and water are used annually during a variety of cleaning processes in all industries. Unfortunately, a lot of the chemicals, water and energy used in the cleaning process are wasted often by inefficient application of the cleaning media. At Spraying Systems we believe in the power of automated cleaning to deliver a consistent cleaning process and severely limit chemical and water usage.

Spraying Systems TankJet® nozzles not only offer an automated and more efficient cleaning process, they also eliminate the need for workers to enter tanks or climb onto equipment - a frequent safety hazard. Workers who are no longer needed to manually clean tanks are not exposed to harsh chemicals and can be deployed to other tasks. As the cleaning media is applied more efficiently via our TankJet® nozzles cleaning times are reduced, and equipment is back in production quicker.

Spraying Systems TankJet® equipment is ideal for the automated cleaning of tanks, choppers, tumblers, grinders, stuffers, and is available in the following categories:

- Fixed Stationary
- Fluid-Driven Constant Speed
- Fluid-Driven Reactionary Force
- Fluid-Driven Turbine
- Motor-Driven

Cleaning in Place (CIP) solutions are also available for quick and efficient cleaning to less accessible areas.

To find out more about our automated cleaning solutions and how they can save you time, money and reduce your energy footprint be sure to check out our dedicated TankJet® catalog or contact your local spray specialist.

MORE INFORMATION



TANKJET®
CATALOG



CONTACT YOUR LOCAL
SPRAY EXPERT





CLEANING AND SANITIZING WITHOUT CHEMICALS OR PROTECTIVE EQUIPMENT

6

Cleaning and sanitizing equipment and workspaces are an essential part of any production process. It improves product quality, increases equipment life and has a major impact on workers' health and safety. Unfortunately, the actual cleaning process is often a hazard to the environment and employee's health.

To solve these issues Spraying Systems Co. have developed a safe, effective and sustainable solution: Klarion™

This system utilises electro-chemical activation (ECA) technology to produce a powerful, safe and sustainable cleaning and sanitizing solution, on demand, in your facility. This means there is no need to reorder, store or mix any hazardous chemicals or discard empty bottles, packets or containers to landfill. The system only needs to be supplied with approved salt, water and electricity to produce the cleaner or sanitizer. The fragrance-free products are just as effective as traditional chemicals but non-irritating to the eyes and skin of your cleaners. They are so safe that protective equipment (PPE) can be eliminated altogether. To use Klarion™ the cleaner or sanitiser can be pumped into mobile cleaning tanks or can be added into automated cleaning systems directly from the Klarion™ storage tank.

The Klarion™ cleaner is a sodium hydroxide based solution that is highly effective in breaking down:

- Fats
- Oils
- Proteins

The Klarion™ sanitizer is a hypochlorous acid solution that is equally effective in eliminating:

- Bacteria
- Viruses

Klarion™ is an innovative alternative to harmful chemicals. It can help your organisation setup a sustainable cleaning program with healthier and more productive workers with zero impact on the environment.

MORE INFORMATION



KLARION WEBSITE



KLARION VIDEO



7 DRYING AND BLOW-OFF PROCESS WITHOUT COMPRESSED AIR

Many production processes require a drying or a blow-off stage to prepare or finish materials. This often requires inefficient and noisy machinery that is not very effective in getting the job done. At Spraying Systems Co., we have developed a wide range of sophisticated WindJet® nozzles and regenerative blowers to make these processes more efficient and save money and resources.

Spraying Systems' regenerative blowers use a dynamic operating principle that recycles a certain amount of air to provide performance comparable to many multi-stage or positive displacement blowers. The compression space consists of a hollow circular ring between the tips of the impeller blades and the walls of the housing. In operation, the rotating impeller draws air from the inlet port into the compression space and moves it radially outward to the curved housing by centrifugal force. The action is called "regenerative" because a certain amount of air slips past each impeller blade during rotation and returns to the base of a succeeding blade for re-acceleration.

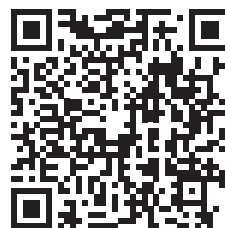
The result is a system that can reduce operating costs by as much as 95%. In addition to reducing costs, the system also creates clean, heated air and makes a lower operational noise than comparable products, creating a safer and more agreeable work environment.

This system is an ideal replacement in the following applications:

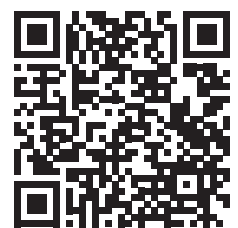
- Velocity rather than impact
- The oil in compressed air is causing quality problems
- Large application areas (more than 60 cm)
- Heated air is needed
- Air knives can be placed at 10cm or less

To find out which WindJet® Air Knife package is the best fit for your drying or blow-off process be sure to contact your local spray expert.

MORE INFORMATION



WINDJET®
CATALOG



CONTACT YOUR LOCAL
SPRAY EXPERT



Sustainability Case Studies

Be sure to check up on our growing list of case studies for inspiration on how you can improve your production process and reach your sustainability goals.

CS E4014

Chemical company saves on production costs and improves work conditions with their new sustainable spraying system

Results

- No more overapplication and wastage of release agent
- No more compressed air needed
- Safer work conditions - Air quality and spillage issues solved
- More efficient process with less cleaning amount to savings of €18,500 / year

CHEMICAL COMPANY SAVES ON PRODUCTION COSTS AND IMPROVES WORK CONDITIONS WITH THEIR NEW SUSTAINABLE SPRAYING SYSTEM

PROBLEM: A chemical company, part of a large international group, was releasing liquid release agents to prevent mold patterns in the casting of the hull of a ship. The problem was that the spray system was not applying the release agent in a transparent way to the mold.

SOLUTION: Solid connections and work increased the customer's production capacity and improved work conditions. The new spray system was applied to mold patterns to prevent mold release.

MEETING SUSTAINABILITY GOALS AND SAVING COSTS AT THE SAME TIME

CS E4018

Automotive parts producer cuts lubrication oil use by 30% and meets sustainability goals

Results

- No more over- or underapplication of lubricant
- Total oil consumption dropped by 30%
- Cleaner and safer work environment

AUTOMOTIVE PARTS PRODUCER CUTS LUBRICATION OIL USE BY 30% AND MEETS SUSTAINABILITY GOALS

PROBLEM: Lubrication oil was used in large quantities for the production of automotive parts. The customer wanted to reduce oil consumption and improve work conditions.

SOLUTION: The customer implemented a new spray system that reduced oil consumption by 30% and improved work conditions.

MEETING SUSTAINABILITY GOALS AND SAVING COSTS AT THE SAME TIME

CS E4021

Baby diaper manufacturer reaches sustainability goals and saves €13,500 a year in the process

Results

- Better product quality
- Reduced alcohol consumption for a cost of €13,500 / year
- No manual maintenance means safer work conditions

BABY DIAPER MANUFACTURER REACHES SUSTAINABILITY GOALS AND SAVES €13,500 A YEAR IN THE PROCESS

PROBLEM: A large international baby diaper manufacturer was having difficulties in the production of the baby diaper. The customer wanted to improve product quality and reduce alcohol consumption.

SOLUTION: The customer implemented a new spray system that improved product quality and reduced alcohol consumption by 30%.

BETTER QUALITY AND LOWER COST THROUGH SPECIALIST SPRAY ADVICE



AUTOJET® SYSTEM ENABLES SUSTAINABILITY AMBITIONS AND PAYS FOR ITSELF IN LESS THAN 3 MONTHS



PROBLEM:
A leading manufacturer of savings for the meat industry was unable to reduce the amount of spray applied to their products. The spray was excessive and wasteful, and the amount of spray was too high, leading to excessive waste and high energy costs. The spray was also too thick, leading to a sticky coating on the product.

SOLUTION:
To solve the issue, the manufacturer was able to reduce the amount of spray applied to their products by using the AutoJet® System. The system is a spray application system that uses a spray gun to apply the spray to the product. The system is designed to spray the product with a fine mist, which is more efficient than the traditional spray application method.

BETTER SPRAYING MATTERS
With over 20 billion gallons of liquid spray used in the world each year, it is important to find ways to reduce the amount of spray used. The AutoJet® System is a spray application system that uses a spray gun to apply the spray to the product. The system is designed to spray the product with a fine mist, which is more efficient than the traditional spray application method.

SUSTAINABILITY APPLIED.

Spraying Systems Co. Experts in Spray Technology

CS E4022

AutoJet® System enables sustainability ambitions and pays for itself in less than 3 months

Results

- No more wastage, overspray or misting issues
- Better product quality
- Oil consumption dropped with 80 tons / year
- Energy saving of 18kW
- Return on investment of less than 3 months

SNACK PRODUCER DECREASES SCRAPPED PRODUCTS BY 50% AND REACHES SUSTAINABILITY GOALS



PROBLEM:
A snack producer with international ambitions needs to apply a layer of adhesive onto their bread rolls to be used as a cracker. The adhesive was being applied in a way that was wasteful and inefficient, leading to a high amount of scrapped products.

SOLUTION:
The snack producer was able to reduce the amount of adhesive used by using the AutoJet® System. The system is a spray application system that uses a spray gun to apply the adhesive to the bread rolls. The system is designed to spray the adhesive in a way that is more efficient than the traditional spray application method.

HIGHER QUALITY PRODUCT AT A LOWER COST THANKS TO INVESTMENT WITH 6 MONTHS PAYBACK PERIOD

Spraying Systems Co. Experts in Spray Technology

CS E4023

Snack producer decreases scrapped products by 50% and reaches sustainability goals

Results

- Scrapped products numbers dropped from 10% to 5% of total production
- Process no longer needs a full-time operator
- Binder liquid use reduced with 30%

CHEMICAL COMPANY SAVES ON PRODUCTION COSTS AND IMPROVES WORK CONDITIONS WITH THEIR NEW SUSTAINABLE SPRAYING SYSTEM



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Spraying Systems Co. Experts in Spray Technology

MORE INFORMATION



CASE STUDIES

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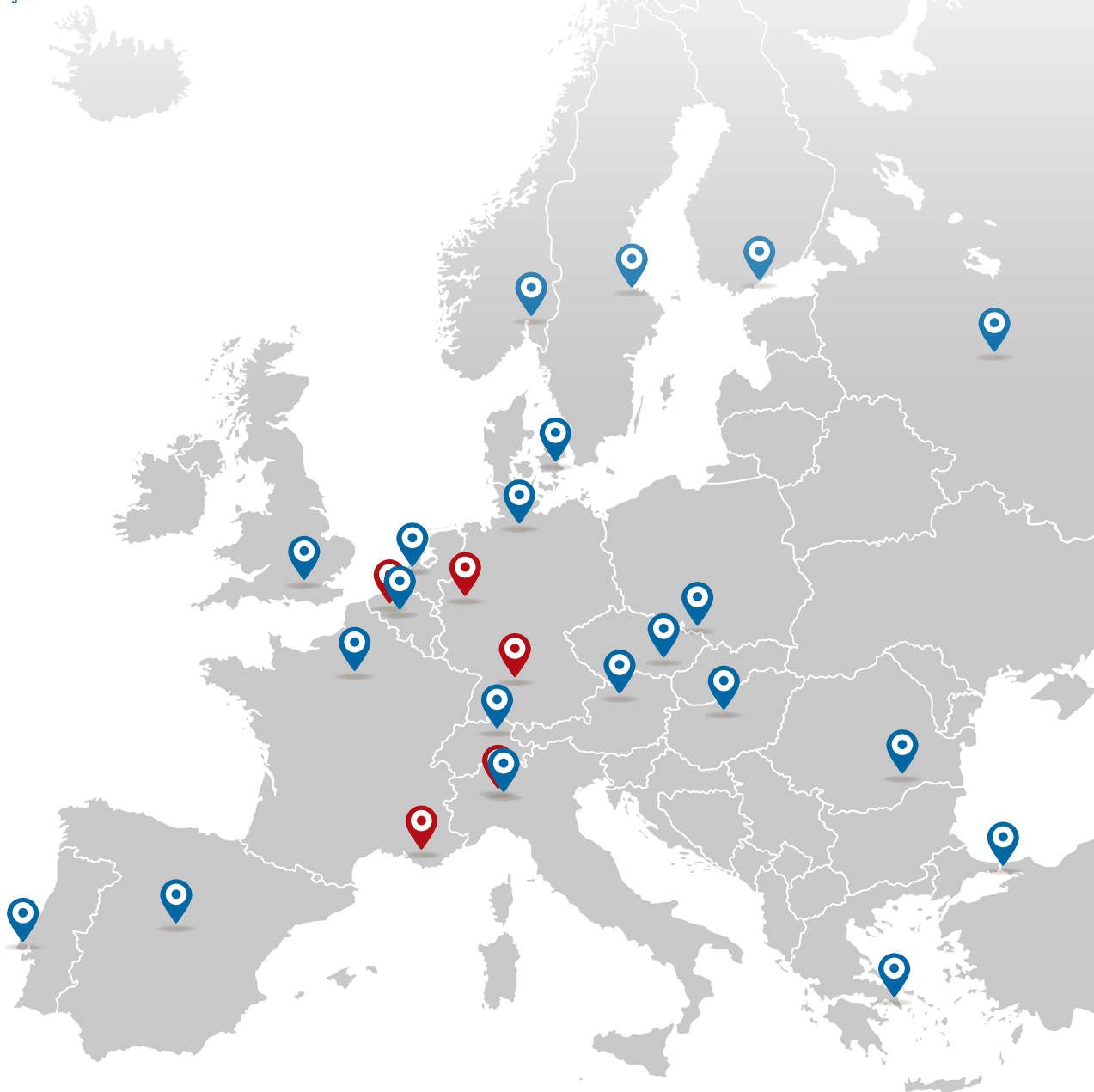
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