



mycon GmbH

The new dimension of industrial cleaning

mycon GmbH

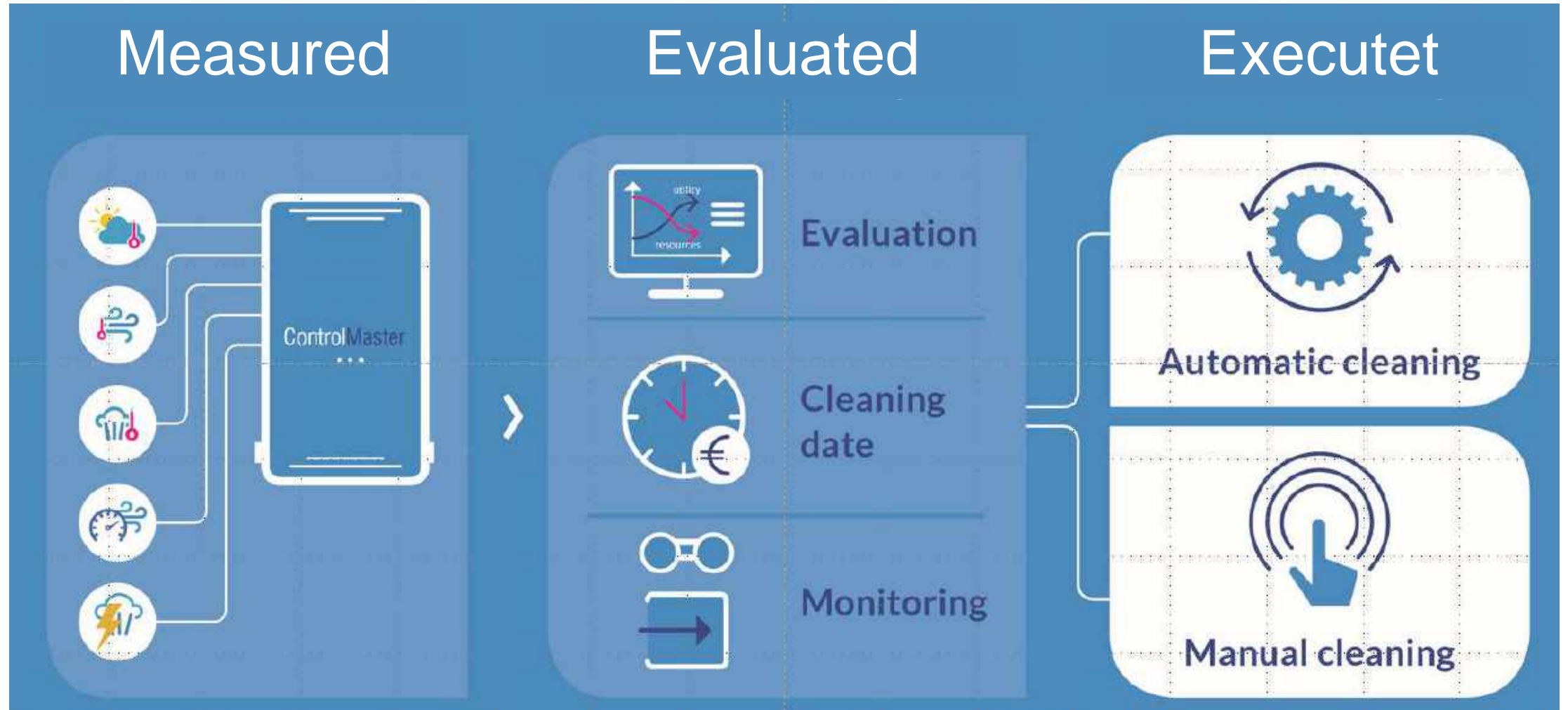
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Mycon GmbH

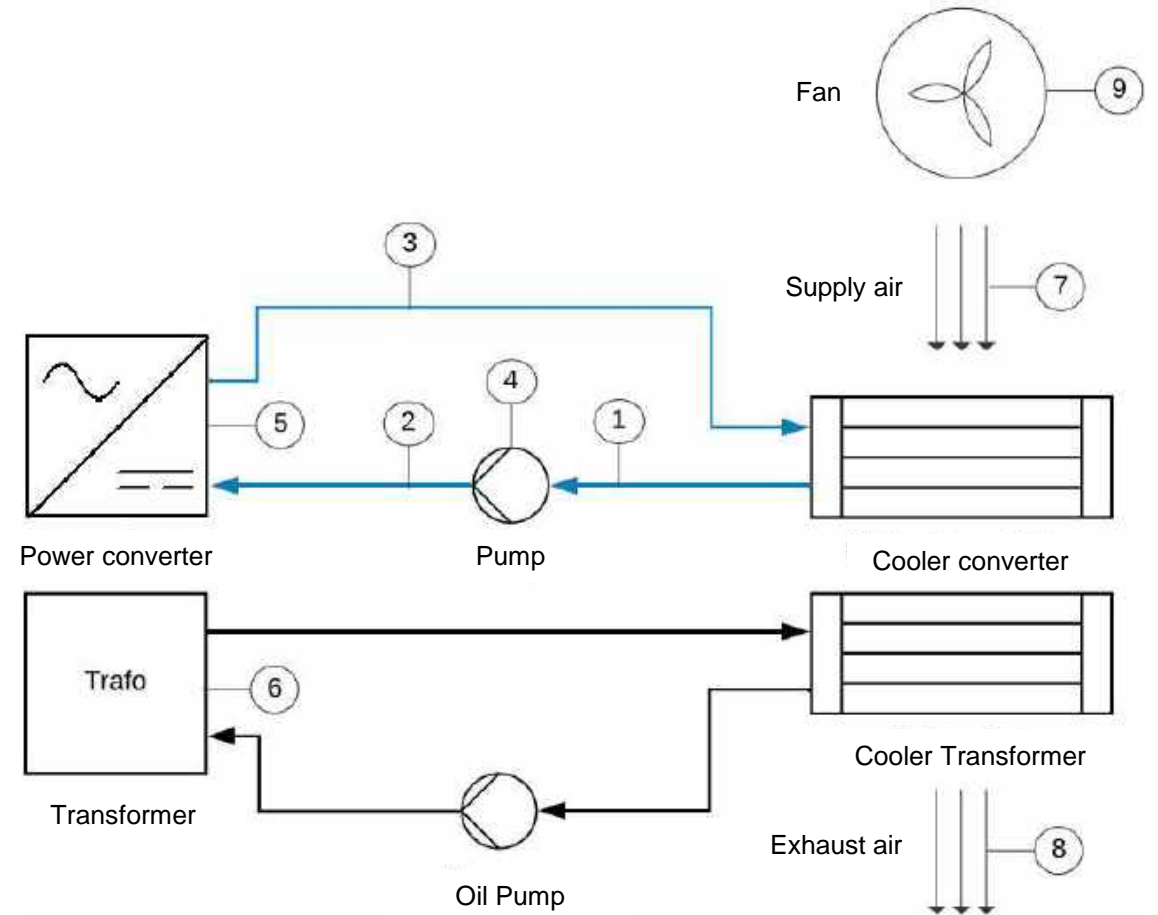
- Member of the Kipp Group (company started in 1971) (Other members are Kipp Umwelttechnik GmbH and Jens W. Kipp Tiefbau GmbH)
- mycon was founded in Bielefeld in 2002
- mycon develops, produces and markets new products and automation technologies
- Competence in cleaning, decoating, cooling, coating
- Many years of experience in the industrial sector have led to many system developments and patents, some of which are internationally valid

ControlMaster monitoring of heat transfer apparatuses



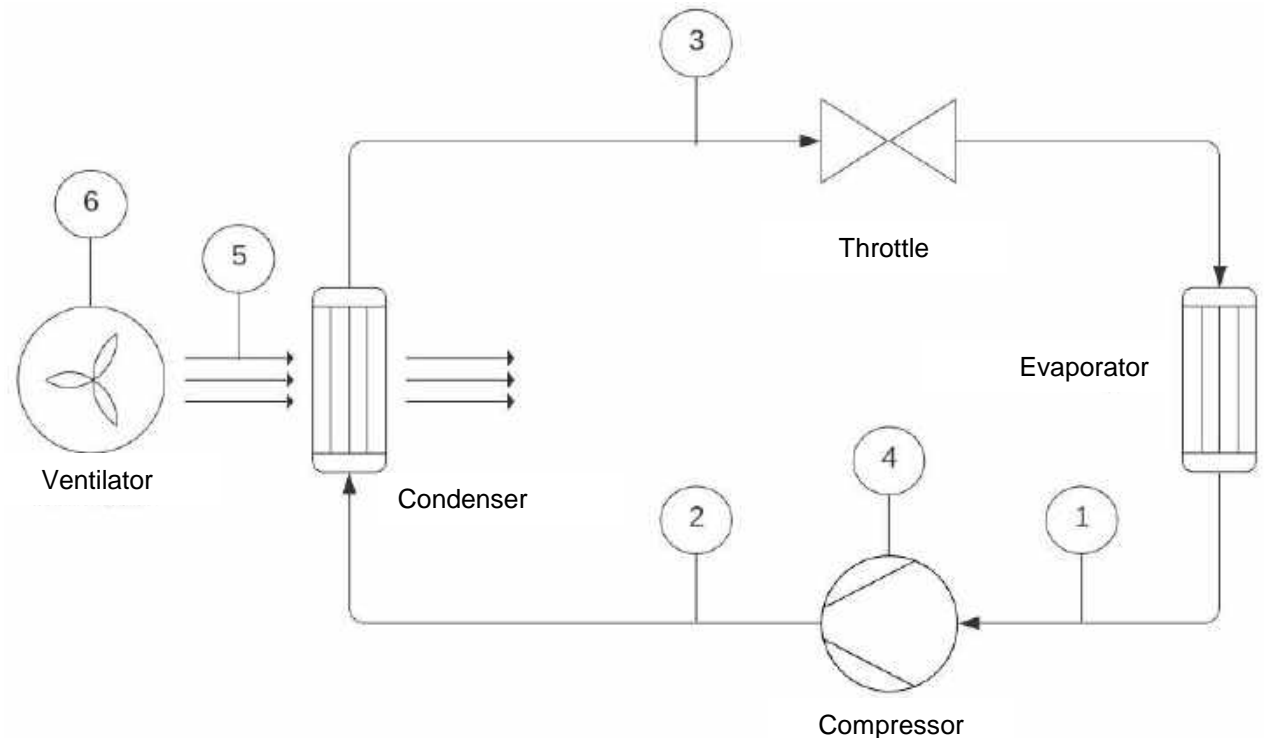
ControlMaster Example Oil cooling system

- Goal: Complete representation of the cycle
- Measurements of pressure, temperature and electrical power
- Additional measurement of parameters to be monitored
- Measured values are processed and saved by the **ControlMaster**



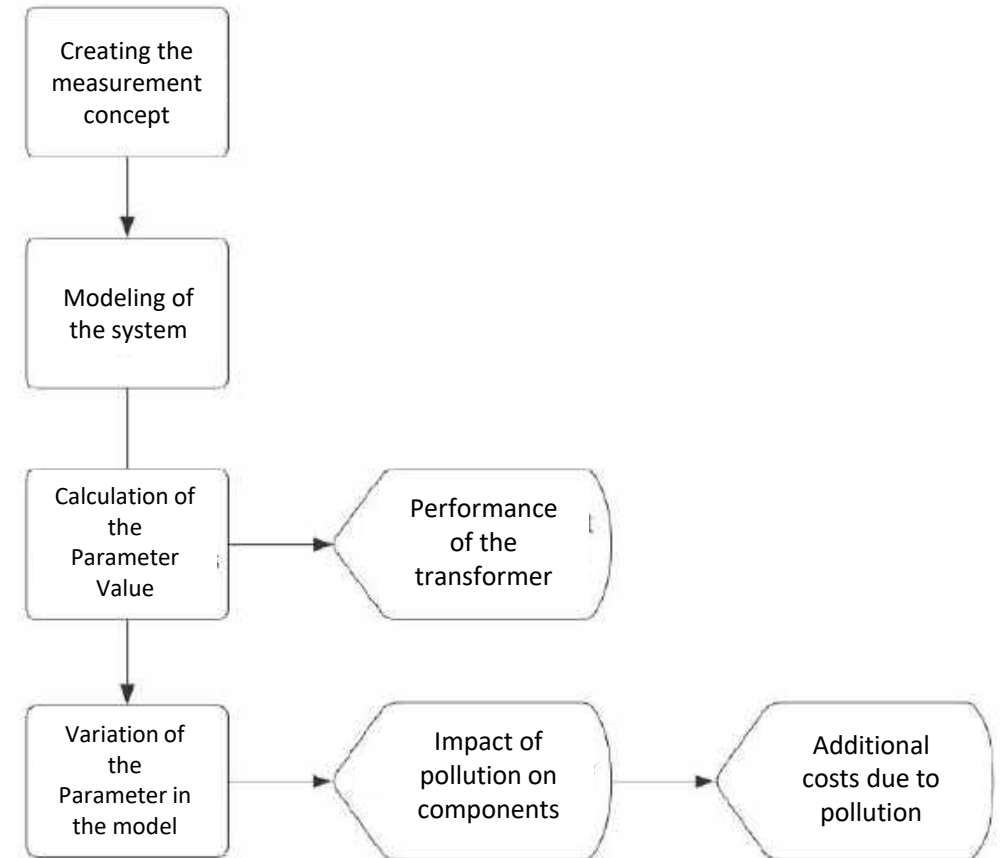
ControlMaster Example Air conditioning

- Goal: Complete representation of the cycle
- Measurements of pressure, temperature and electrical power
- Additional measurement of parameters to be monitored (e.g. interior temperature)
- Measured values are processed and saved by the **ControlMaster**



ControlMaster Evaluation of the data/algorithm

- Evaluation of the measurement data using an algorithm
- Determination of a parameter value for evaluating the performance of the heat exchanger
- Modeling the system enables simulation of the operating status with diverse contamination
- The transfer of existing measurement data enables prediction of increased energy production and energy saving options



ControlMaster Benefits

- Warning of awaiting significant reduction in function
>>> predictive maintenance
- Constant evaluation of the heat exchanger, determination of the optimal cleaning dates
- The influence of contamination on the system in which the heat transfer device is integrated and continuously calculated
- Determination of the optimal cleaning times, determination of the losses due to the contamination of the condenser
- **ControlMaster** takes the cleaning costs into account when determining the optimal cleaning time

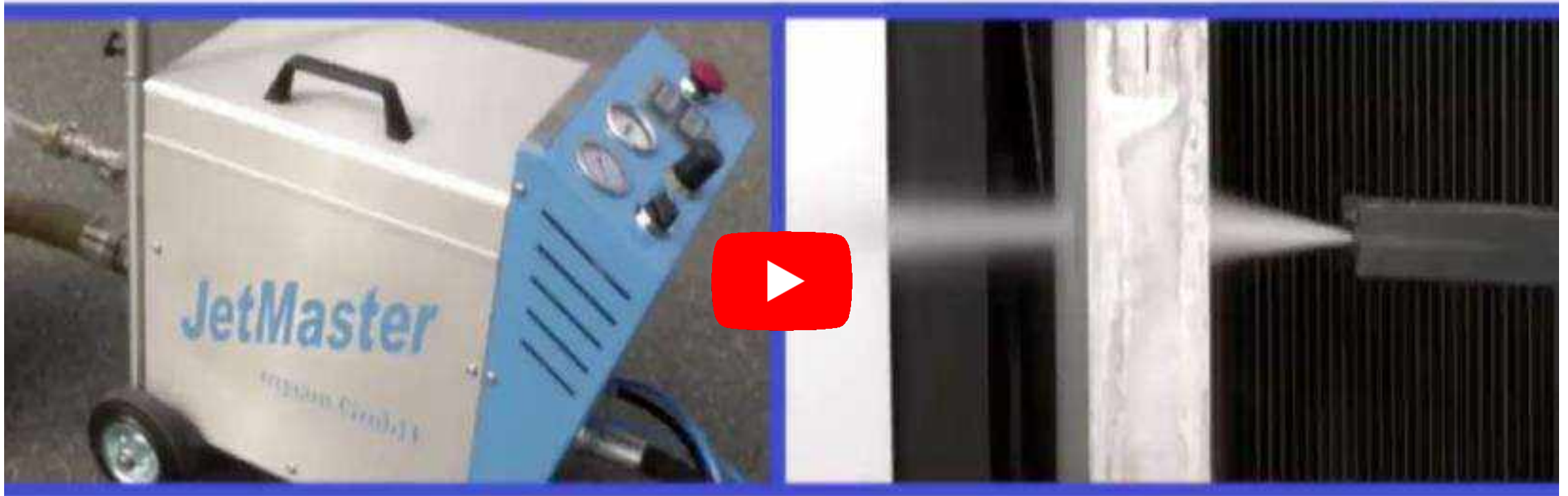


JetMaster for cleaning finned heat exchangers

- Works with compressed air and a small amount of normal water (drinking water quality)
- depending on the nozzle used, between 12–60 liters per operating hour
- Water is pre-treated in the device and then supplied to the compressed air
- Low pressure range of 2–8 bar

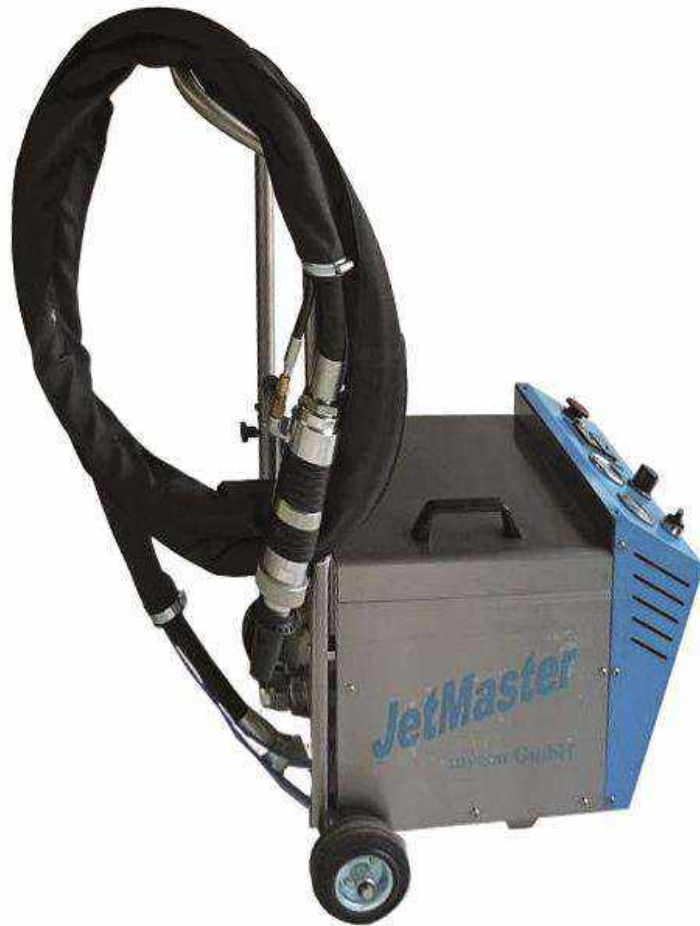


JetMaster



intensive, but gentle cleaning

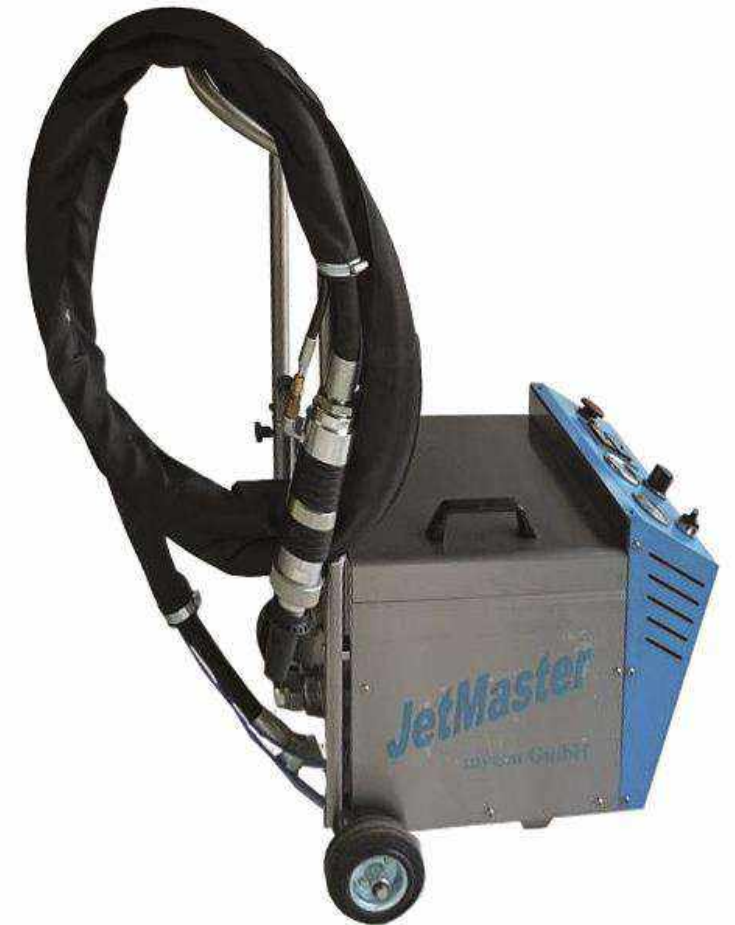
JetMaster Advantages



- can also be used to clean solar panels, rotor blades, wind turbines or for glass cleaning
- New: Noise and splash water reduction through nozzle attachment
- high cleaning efficiency, fast cleaning speed
- Energy savings by reducing motor energy consumption through improved heat transfer with clean surfaces
- only compressed air and water without chemicals
- reduced water consumption
- intense but very gentle cleaning without damaging the surface

JetMaster in comparison with other processes

- If **JetMaster** is used with a lance system, no guide grid is required on the oil cooler.
- Cleaning with compressed air prevents damage to the cooling grids.
- No additional cleaning products are required. This means that the oil coolers are chemically economical and last for longer.
- Increased availability of oil coolers with a gentle spray pressure of around 6 bar when using the **JetMaster** system



JetMaster in application



Cleaning of traction cooler



JetMaster with anti-spray
and soundproofing element



Oil cooler cleaning of a locomotive

JetMaster process comparison using locomotive oil coolers as an example

	JetMaster-System	High-pressure cleaning
Consumption of water per cleaning and aggregate	20 l	200 l
Annual consumption of water	4.800 l	48.000 l
Water/wastewater costs per oil cooler cleaning	21,12 €	211,20 €
Time required for oil cooler cleaning	7 h	8 h
Total cleaning costs*	84.000 €	96.000 €
Savings per year	-12.000 €	
Premature oil cooler failures per year	5	9
Oil cooler repair costs, including disassembly and installation	48.000 €	86.400 €
Savings on oil cooler failure costs per year	-38.400 €	
Oil cooler cleaning costs, including purchase of replacement	132.000 €	182.400 €
Reduction in costs thanks to use of JetMaster cleaning process per year	-50.400 €	

Calculation bases
Calendar year: 2019

Oil cooler inspections and cleaning
(2 units to be cleaned per locomotive)

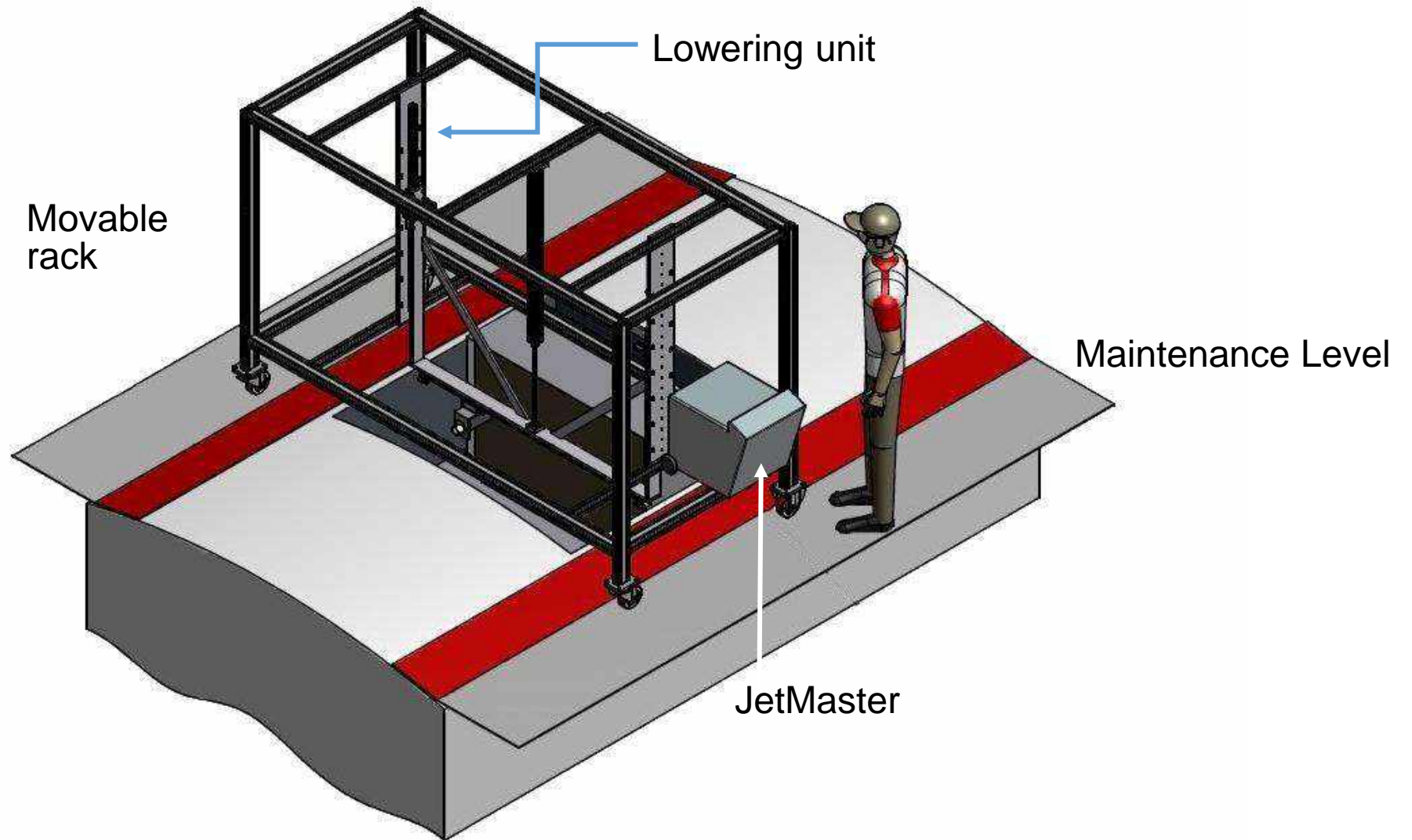
* EUR 100.00 € hourly production rate

EUR 2.05 per m³ of drinking water (deposit)
EUR 2.35 per m³ of wastewater (deposit)

~ 8,000.00 € oil cooler repair costs

The values shown are based on customer information/estimates

JetMaster special application



JetMaster in action



JetMaster AS

- The nozzles move on the surface of the condenser fully automatically and remove deposits from the fins or finned tubes.
- Operating with water without any additives (approx. 1 liter water/min. per jet nozzle; 4 nozzles in use)
- Compressed air (approx. 5–7 bar).
- Cleaning performance approx. 100 m²/h
- Gentle cleaning



JetMaster AS for automated cleaning of large areas (finned heat exchanger/finned tubes)



View from the outside



View from the inside

mycon®



**MYCON SETS NEW STANDARDS IN THE FIELD
OF HEAT EXCHANGER MAINTENANCE**

PowerMaster/Mini-PowerMaster

- Surface-friendly, powerful and low-waste cleaning and stripping of surfaces
- Use of compressed air + water-soluble granules + additionally 0.2–1.0 liters of water/min.
- Metal and plastic surfaces are not attacked when used correctly



PowerMaster Product video



PowerMaster for stripping paint from the "Kaiserwagen",
the historical imperial wagon of the Wuppertal
suspended train



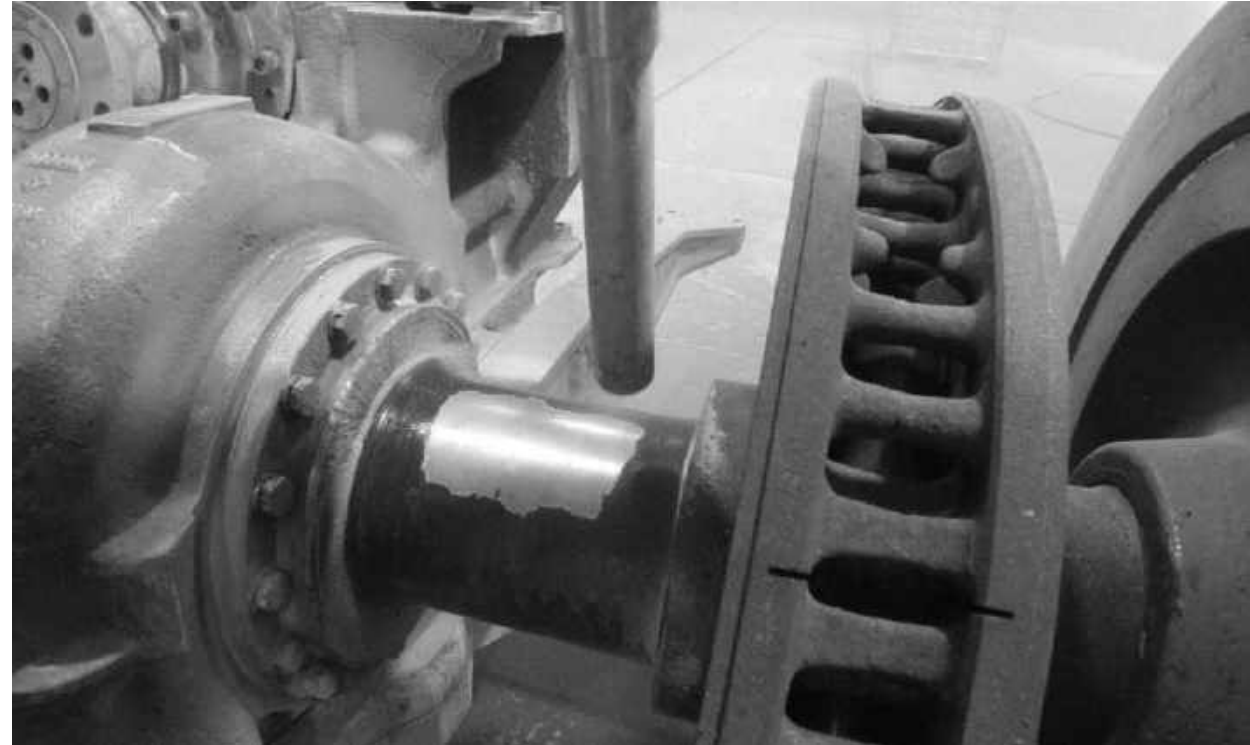
PowerMaster paint removal for wheelsets



PowerMaster in application



Removal of corrosion protection on a train for weld inspection



Paint removal bogie



< Paint stripping for weld inspection

SpeedMaster SR

- Gentle, powerful cleaning without stripping paint
- Equipment: compressed air + water + cleaner (only if required) + water-soluble granules
- Coated surfaces are not attacked when used properly



SpeedMaster in application



SpeedMaster SR in application



Graffiti removal

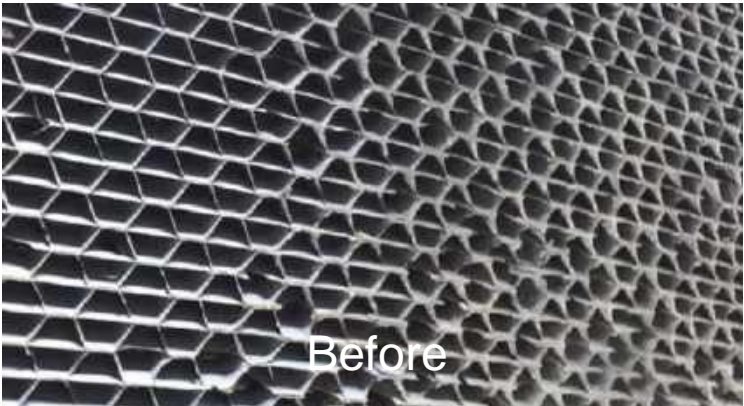


Before

Cleaning the locomotive buffer



After



Before

Cleaning plastic air grilles



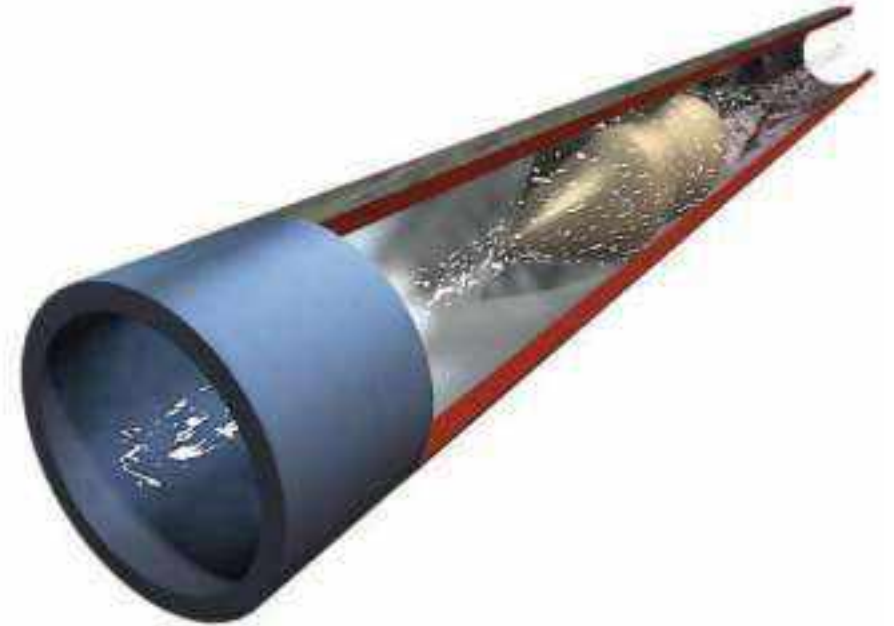
After

Cleaning bogie with SpeedMaster



TubeMaster, the non-abrasive inner tube cleaning system

- Works with the blasting agents dry ice, liquid cleaners, various solid granules
- The TubeMaster nozzle is guided through the pipe to be cleaned at a defined speed
- In addition to cleaning, the inner tube surface can also be polished if necessary
- Used for the effective cleaning of heat exchangers and pipelines used
- Works with a jet pressure of 4–10 bar
- Use for pipes with an ID 3–150mm



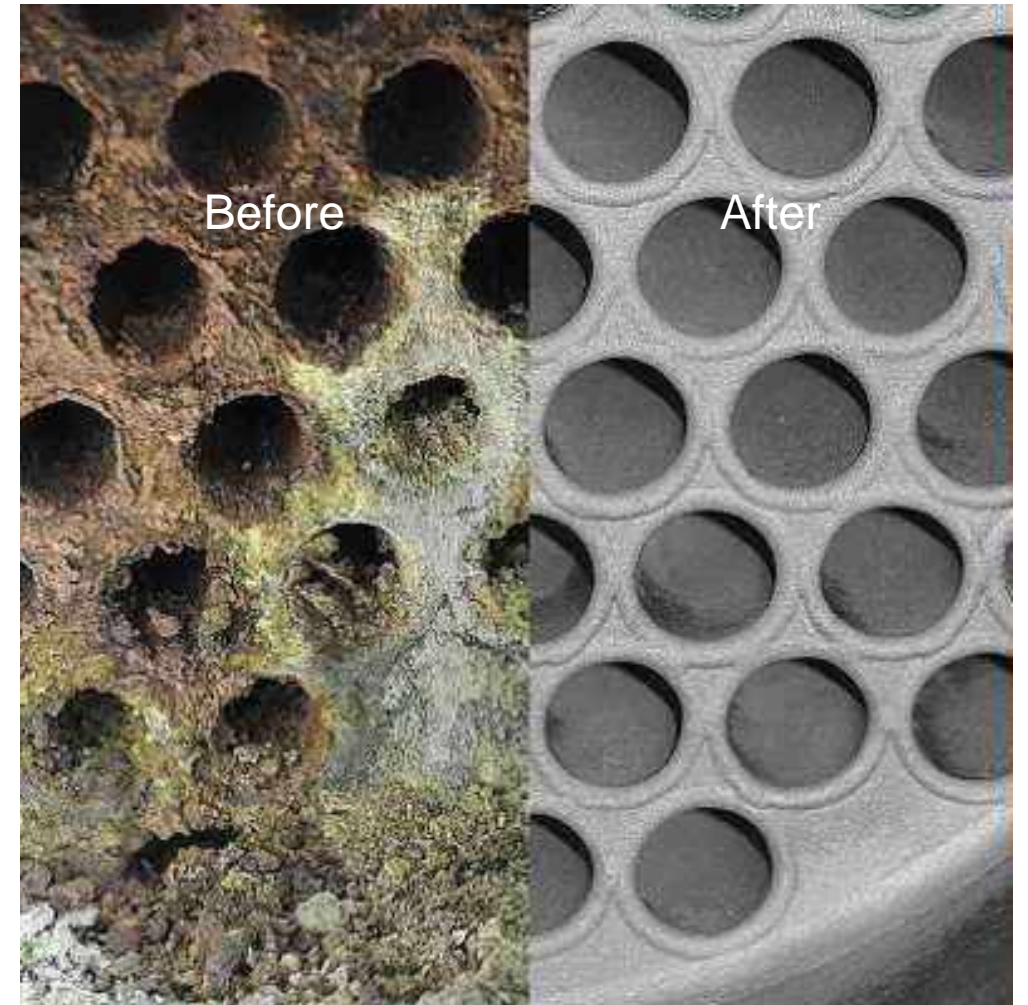
TubeMaster principle of cleaning



TubeMaster in application



Manual cleaning of pneumatic pipes in the railway area using TubeMaster



Cleaning the tube bundle heat exchanger

IceMaster

- Cleaning electronics using dry ice / dry snow is usually associated with strong electrostatic charges.
- The discharge of this charge is sometimes so far not reliably successful.
- mycon was not success here for a long time and based on this experience has developed a dry ice blasting process in which electrostatic charges do not occur at all or only in the permissible range of well below 100V.



IceMaster cleaning electronics



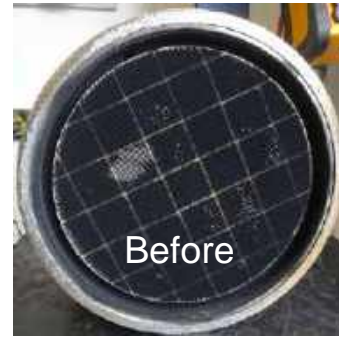


Automated cleaning of welds
on bogies using IceMaster

FilterMaster for cars and more



FilterMaster
Version without compressed air



Exhaust particulate filter



Test station

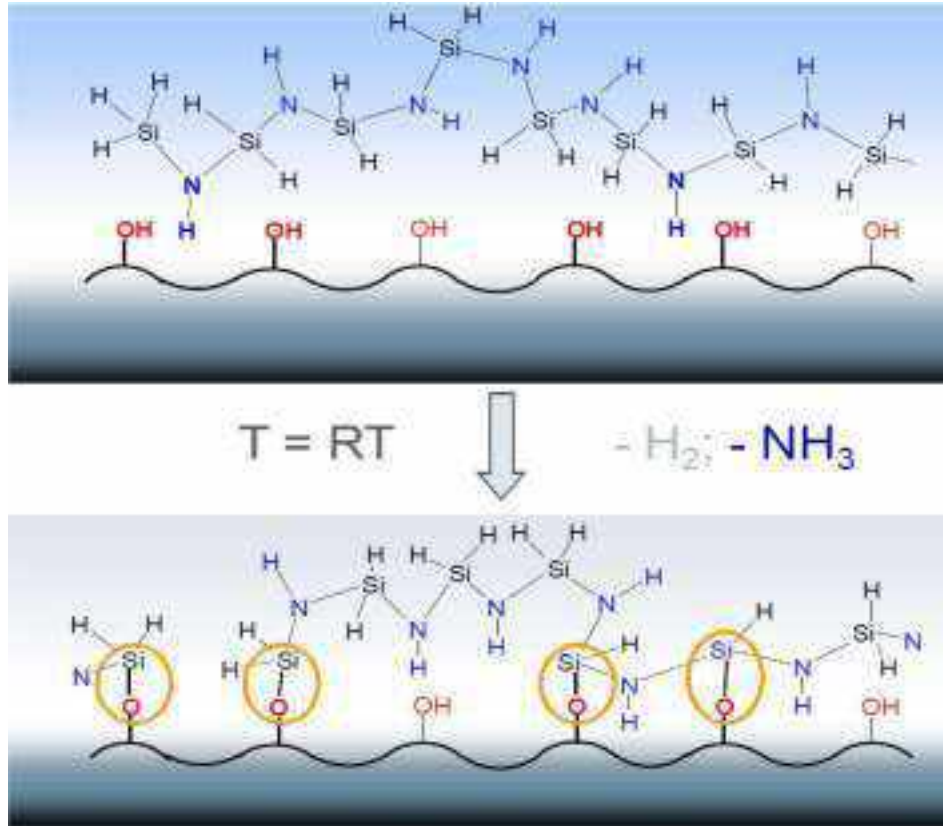
Hydrophobic and protective coatings

- Depending on the application, we use coating systems specially tailored to the needs of the customer.
- Thanks to our many years of cooperation with the system suppliers and our development department, we can respond individually to all requirements and offer our customers custom solutions.
- In combination with our unique application technology, we meet the highest requirements for coating homogeneity even with complicated geometries.
- In order to meet all requirements, we work with purely ceramic and hybrid systems

Ceramic coating system

- Excellent substrate adhesion thanks to covalent bonding
- UV and chemical resistance
- High hardness up to 9H (sapphire crystal)
- Surface smoothing
- Excellent easy-to-clean properties
- Permanent barrier layer
- Diffusion-tight
- Exceptional corrosion protection
- Very good temperature resistance up to 1200 ° C.
- Excellent weather resistance

Ceramic coating system

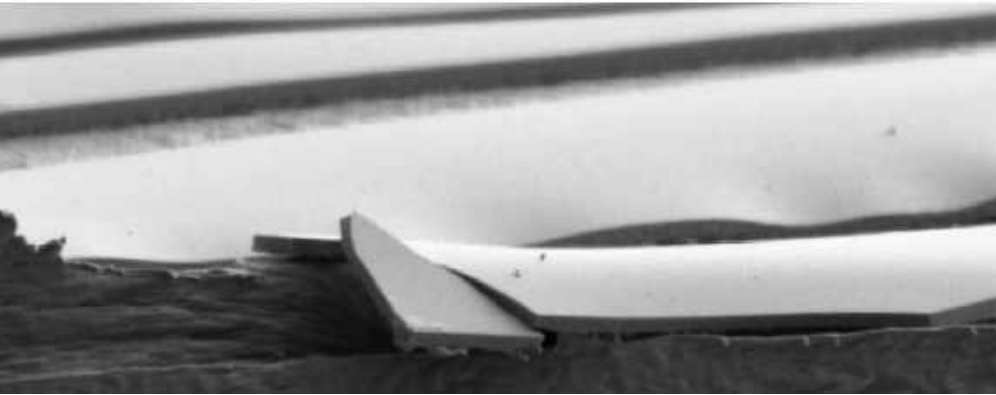


Excellent substrate adhesion
through covalent bonding



Surface smoothing for excellent easy-to-clean
properties

Ceramic coating system



permanent barrier layer
diffusion-tight
100 nm ceramic layer on PET



Excellent corrosion
protection Steel after
1500 h salt spray test



Hydrophobic coating of boreholes in
perforated plates increases the flow
rates considerably

Ceramic coating system in application

- The extremely thin ceramic coating applied continuously with a special process, it has a very low insulating effect, but it leads to self-cleaning effects due to less deposits dirt.
- The flow volume is also greatly increased by the mirror-smooth surfaces and thus ensures better cooling.

Ceramic coating system Advantages



Hydrophobic coating of high-voltage insulators brings self-cleaning effects in the train area.

Cleaning the insulators with [JetMaster](#) does not cause any damage.



The hydrophobic coating of the exchanger brings self-cleaning effects. The effects and optimization options are currently researched together with a university.

Contact

www.mycon-germany.com



Jens W. Kipp
j.kipp@mycon-germany.com
Phone: + 49 521 403090
Fax: +49 521 402482

mycon GmbH
Senner Straße 156
33659 Bielefeld
Germany