



pero

Advanced metal cleaning

SOLUTIONS FOR **OPTIMUM**
INDUSTRIAL PARTS **CLEANING**



PERO – economical parts cleaning for more than 50 years

COMMITTED TO PERFECT SOLUTIONS FOR INDUSTRIAL PARTS CLEANING

Since 1953 PERO AG (**P**eter **E**rbel **R**einigungsanlagen und **O**berflächentechnik) has been developing systems for advanced metal cleaning. All its products are manufactured in Germany. The company name stands for know-how, highest technical standard, excellent customer service and expert advice.

We are a well-established partner of the international automotive, aviation, lighting, electrical and optical industries and their suppliers. We also provide solutions for jewellery makers. Our units can be found everywhere where bulk and assembly parts must be cleaned, degreased and/or freed from extraneous material according to specifications. They are also used for the processing of repair parts. Whether standard machines or tailor-made solutions – we offer our customers units catering for basically all cleaning tasks. Our machines are the preferred solution for the cleaning and degreasing of minute watch components as well as for the processing of large motor blocks.

From the very beginning, PERO AG aimed at becoming the technology leader in the field of industrial parts cleaning. Our numerous innovations that eventually became the technical standard are witness to this. With our developments, we have been able to minimise the consumption of detergents and emissions, setting new standards that were subsequently adopted for the relevant environmental legislation.

It is our objective to offer you the most effective and economical solution for your specific cleaning task, making full use of automation options. The advice we can give you is always based on more than 50 years experience in the field.

Our specialists analyse your specific cleaning requirements and liaise with your technicians to develop the best solution. In practical tests, this solution is then verified at one of our test centres, using your original workpieces. This approach guarantees that our machines meet your specific cleaning needs and will continue to be a core service of our company.

The family-owned company puts long-term success before short-term profits, and all our activities are guided by this commitment.

In PERO AG, you will find a reliable partner, who will assist you in all issues in connection with your cleaning tasks and will keep your PERO machine in good state.

Yours sincerely



Horst Erbel, Managing Director PERO AG



left to right: Heinz-Dieter Erbel, Horst Erbel, Aloisia Erbel, Gerd Erbel (he represents the third generation of the Erbel family involved in the management of the company)

IN THE BEGINNING,
THERE ARE **COMPLEX TASKS –**
AT THE END, THERE ARE **PERFECT RESULTS**

With state-of-the art machines, competent advice and comprehensive customers service, we offer our customers optimised cleaning processes and first-class cleaning results.

- Suitable machines for (nearly) every requirement
- Solvent and aqueous cleaning units
- Innovative future-proof technology
- Quality „Made in Germany“
- Economical parts cleaning
- Low-maintenance units with long service life
- High availability
- Low detergent consumption
- Short cycle times, high batch weights
- Conforming to environmental legislation
- Series units and tailor-made machines

CLEANING UNITS



ADVICE

- Comprehensive evaluation of your cleaning needs and site conditions
- Qualified process analysis
- Cleaning tests of your original parts free of charge
- Customised configuration of the cleaning system with
 - standard units
 - tailor-made machines
- Identification of most effective cleaning medium
- Training and lectures

SERVICES

- Works-based customer service
- Spare parts supply guaranteed for more than 10 years
- Maintenance and service contracts
- Wet trial run acceptance of all machines prior to dispatch
- Contract parts cleaning
- Machine leasing
- Assistance in submission to and negotiations with authorities

OUR MANY DECADES OF EXPERIENCE ARE YOUR GUARANTEE FOR **BEST RESULTS**

We have been manufacturing cleaning units for more than 50 years. Our many innovative solutions and inventions have set the path for the development of the sector. As a customer, you directly benefit from this know-how.

1956

- Introduction of electric freezing, reducing solvent consumption by 55%
- 1964 Robomats replace steam jet units in repair workshops, reducing the total wastewater volume
- 1975 First units built according to the principle of „detergent to part“ replacing parts immersion systems
- 1975 Development of close-cycle CHC units
- 1978 Launch of front-loader, the first hermetically sealed solvent-based cleaning units
- 1985 German Industry's Innovation Award for integrated recovery system for solvents in cleaning units
- 1989 Introduction of new drying technology for aqueous units
- 1998 PERO is the first company to implement comprehensive explosion protection measures for units using hydrocarbons
- 1998 Manufacture of first vacuum cleaning machines of class V1
- 2005 Extension of vacuum cleaning series to size V5 (Euro box pallet)
- **FOR MORE** innovative solutions, visit www.pero.ag



Vapour degreaser from 1958 – how it all began



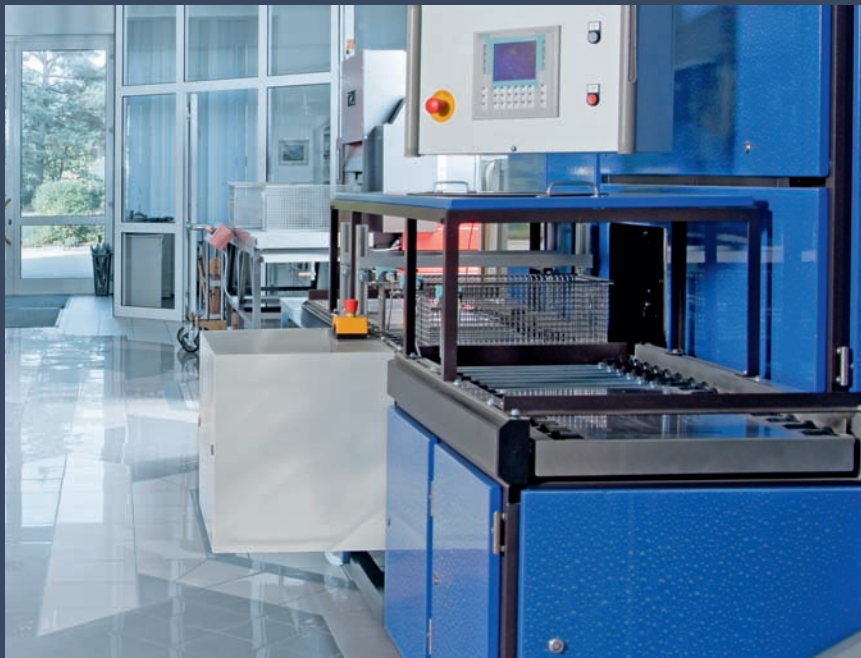
First sealed front-loader, 1978



Modern vacuum unit suitable for all conventional solvents

PRACTICAL EXPERTISE FOR PRACTICAL SOLUTIONS – **PERO TEST CENTRES**

PERO operates seven test centres worldwide. Customers can bring their dirty original parts to have them cleaned with various media (aqueous, HC, CHC and modified alcohols).



PERO Test centre in Königsbrunn, Germany

Practical tests carried out at our test centres verify our solutions

→ At our test centres, we clean your original workpieces in the presence of your technician. This enables you to see for yourself how you can achieve economical and reliable cleaning results using various media and processing technology.



WE THINK ABOUT TOMORROW TODAY, MAKING YOUR INVESTMENT IN PERO EQUIPMENT **FUTURE-PROOF**

When developing new solutions, we always keep in mind what the future holds in terms of cleaning requirements, availability of space and the protection of the environment. This approach ensures that your investment in a PERO unit is future-proof.

More effective cleaning methods

→ The progress in technology has led to ever more demanding cleaning requirements. We are constantly adjusting our cleaning methods to meet the latest demands of the market, as has been our tradition in the past.

Increased productivity

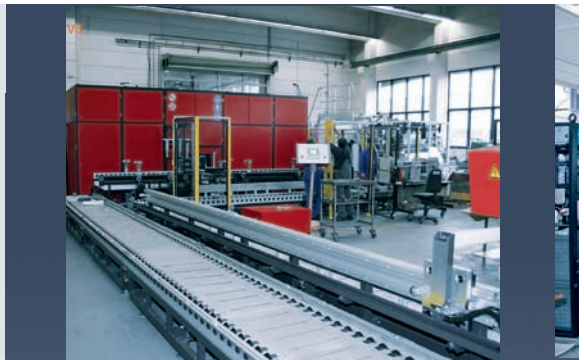
→ In an ever more competitive market, throughput has become one of the key factors for success. We optimise our methods and processes so that you can achieve shorter cycle times and thus greater productivity.

Versatile units

→ Our cleaning units of the „Universal“ type can be operated with CHC, CH, modified alcohols, fluorinated and brominated hydrocarbons (flash point > 55°C). Changing agent does not require any mechanical modifications and is thus easily possible at any time. This further ensures that your investment retains its value.

Low solvent consumption and minimum emissions

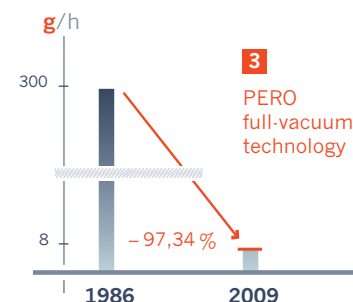
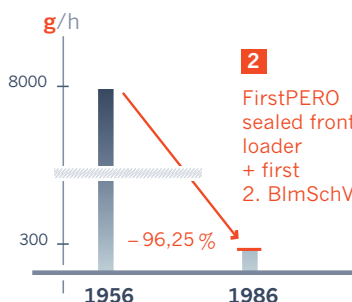
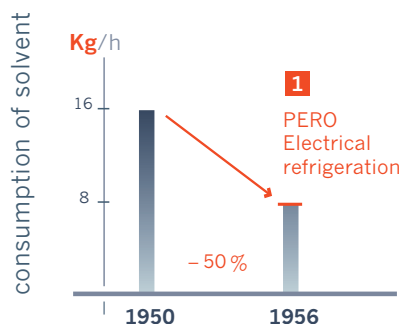
→ For more than 50 years, PERO has been able to continuously reduce the solvent consumption as well as the emissions of its machines. Our excellent results have even become benchmarks used in statutory environmental regulations. With a PERO unit, you are thus well positioned to meet the legal requirements of the future. In addition, the health of your employees is protected thanks to low occupational exposure levels.



We implement even complex charging solutions



Three PERO milestones for the environment and profitability



”MADE IN GERMANY“ IS YOUR GUARANTEE FOR **CUTTING-EDGE TECHNOLOGY**



PERO production hall
in Königsbrunn,
Germany

From the day our company was established, it has been our ambition to offer our customers cleaning units that are unrivalled in the market. Innovative technology and high-quality components form the basis of our leading solutions.

Quality "Made in Germany"

→ PERO cleaning units are developed and manufactured at our factories in Königsbrunn and Gotha in Germany. Our machines are made from internally developed and produced assemblies with components purchased from renowned specialist suppliers. This ensures that our systems are not only extremely effective and efficient, but also very durable. Spare parts for all our products are available in stock for a period of 10 years and more.

Compliance with all relevant regulations

→ We are of course certified according to all relevant standards, including ISO 9001, and conform to the most stringent statutory regulations, such as article 19 of the German Water Protection Act, VOC, BImSchV, CE, fire and explosion safety, ATEX, etc.

Wet trial run and acceptance best for your peace of mind

→ As we want to make sure that you are always 100% satisfied with our products, we always complete a wet trial run before shipping a machine to a customer. This means that the cleaning unit is filled with the intended medium and run at the envisaged operating conditions for acceptance by the customer. Only when you are fully satisfied with the cleaning result of your original parts will the machine leave our factory. This service is offered free of charge to our customers.

Great value for the money

→ For us, stream-lined production and economical resource management is as important as the further technological development of our units. Any cost savings we can make by optimising our own processes are passed on to our customers. When deciding on your investment, you would not only consider the initial capital outlay but also the ongoing operational costs across the entire service life of a unit.



Fachbetrieb nach
§ 19 I WHG zertifiziert



Modern vacuum unit
suitable for all
conventional solvents V4

WE OFFER OPTIMISED SOLUTIONS FOR YOUR SPECIFIC REQUIREMENTS

After having defined the cleaning process and carried out a trial cleaning run with your original parts, we can make you an offer that fully meets all your requirements.

YOUR WORKPIECES ARE

- | | | |
|-----------|------------|----------------|
| → milled | → extruded | → welded |
| → punched | → polished | → shot-blasted |
| → turned | → lapped | → sintered |
| → drilled | → honed | → ... |
| → ground | → hardened | |

CLEANING MEDIA

- Chlorinated hydrocarbons CHC (PER, TRI, MC, etc.)
- Hydrocarbons HC with flash point > 55°C
- Modified alcohols with flash point > 55°C
- Aqueous solutions (acidic, neutral, alkaline)
- Cooling lubricants
- Halogenated hydrocarbons HHC (NPB, HFE, etc.)

CLEANING CHAMBERS (various sizes)

- Single-chamber units
- Multiple-chamber units
- Rotating basket
- Tunnel units
- Wash tables

PARTS HANDLING

- Nets for small parts
- Wire-Mesh baskets
- Perforated metal boxes
- Pallets
- mesh boxes
- Small parts carriers
- Customised workpiece carriers
- Processing without container

CLEANING RESULTS

- Grease-free
- Particle-free
- Cleaning requirements based on specifications, e.g. VDA 19 by the German Association of the Automotive Industry

YOUR CLEANING TASK

Removal of

- Pigments/chips
- Grinding dust
- Oil, grease and wax
- Emulsion
- Polishing pastes
- Lapping pastes
- Deposits/crusts

CLEANING METHODS

- Spray cleaning
- Immersion cleaning
- Vapour degreasing
- Ultrasonic cleaning
- Cleaning by splash flooding
- Turbulence flood cleaning
- Injection flooding
- Preservation
- Oiling

CHARGING

- Manual roller tables
- Manual roller conveyors
- Automatic charging
(single or multiple line charging)
- Reverse mode operation
- Basket detection with scanner
- Tilting stations
- Factory trolleys
- Scissor lift trolleys

MEDIUM TREATMENT

- Vacuum distilling units
- Lye oil separators
- Sediment separators
- Micro-filtration/ultra-filtration
- Water demineralisation
- Waste water processing

→ Interested to find out more?

Then contact us by calling +49 (0) 82 31-60 11-0
or by completing our web contact form at www.pero.ag

A COMPREHENSIVE **RANGE OF SERVICES** MAKES FOR **SATISFIED CUSTOMERS**



Always in dialogue with you



One of the storage facilities in Königsbrunn, Germany

For us, solving your cleaning tasks does not end with the commissioning of the unit. We therefore offer a wide range of after-sales services aimed at ensuring high availability of your machine and a good business relationships with you for many years to come.

PERO customer service technicians

→ Our well trained and centrally dispatched customer service technicians assist machine operators all over the world. In addition, we offer you a hotline for technical support and spare parts orders. On request, we also provide remote diagnostic services for your equipment.

Maintenance and service contracts

→ Our flexible contracts enable you to organise maintenance and servicing according to your needs. Our team assists contract customers also outside normal working hours. If you have any queries, our service specialists can be easily contacted by phone and our experienced technicians eliminate problems on site in the shortest possible time

Spare parts supply

→ As our cleaning units are of a particularly sturdy and durable design, we will keep spare parts for your machine in stock for more than ten years. This means that your machine can remain in service for decades, adding to the already great return on investment. The main spare parts are also available in stock at our branch offices for even faster delivery.

Training and lectures

→ Our services include training sessions for machine operators. They ensure that your employees can run your PERO unit in the most efficient and safe way. In addition, we organise lectures by specialists on all topics around the cleaning of industrial parts.

Rental or leasing

→ You have the option to lease a unit from PERO. The funding can be arranged in a flexible manner through our financial partner.

Contract cleaning

→ On request, we offer customers a contract cleaning service. To evaluate the best method for your specific parts, we first run a number of cleaning trials at our test centre. Contract cleaning is the ideal solution for companies who only need to clean small quantities of parts or are facing a temporary shortage of capacity at their own plant.

→ By opting for "chemical leasing", we can significantly reduce the consumption of resources, which obviously benefits the environment. To make this innovative concept available to you, we have entered into development partnerships with a number of companies. We are proud of the fact that PERO is the only cleaning machine manufacturer who is implementing practical chemical leasing projects.

WHEREVER YOU ARE LOCATED IN THE WORLD – WE ARE THERE FOR YOU!

If you have any questions regarding industrial parts cleaning or wish to know more about our products and services, please contact us

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Date of issue: 10/2009

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