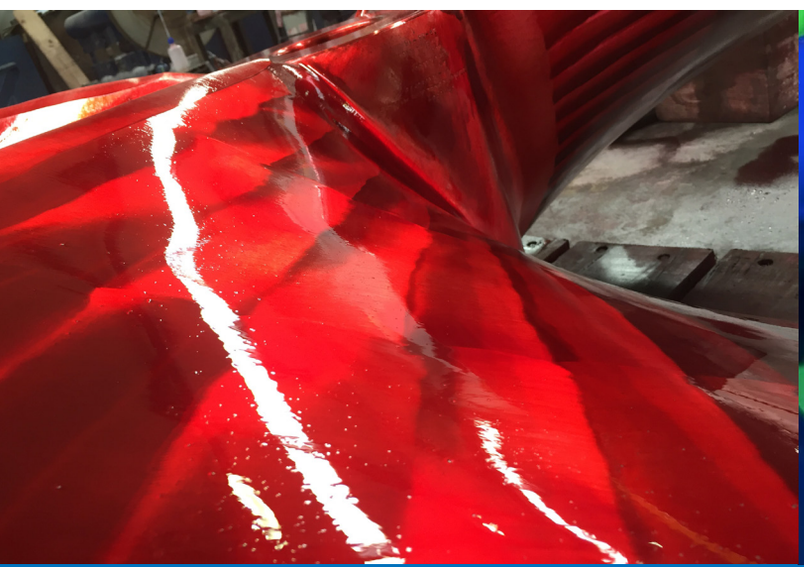
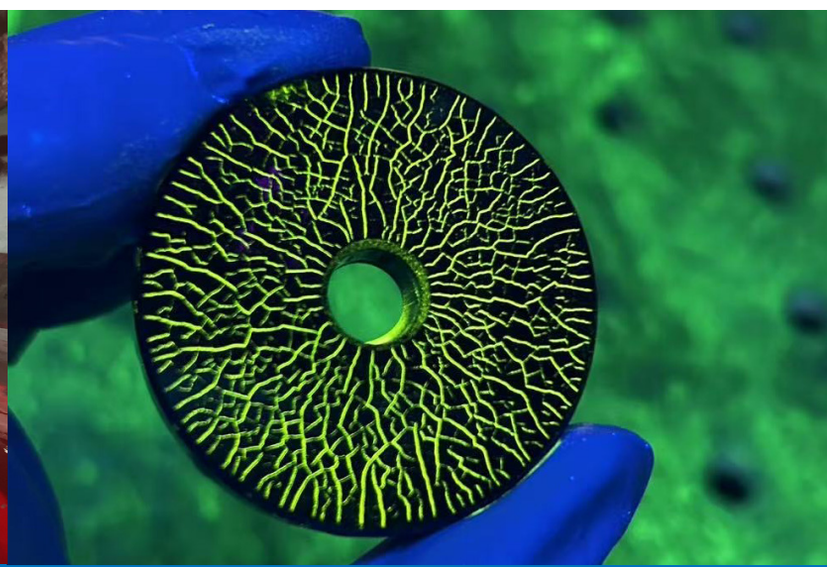
PFINDER

PENETRANT TESTING
MAGNETIC PARTICLE TESTING





FROM THE GREEN NDT PIONEER

THINKING AHEAD SINCE 1884.

PFINDER:
Thinking ahead with tradition

Traditional and surprising at the same time: Only those who are always improving can stay successfully in the market for more than 130 years. What began in 1884 as a supplier to the Royal Court of Württemberg is now a globally operating company with locations in Germany, USA, Mexico and China. But it is not only the long time experience that characterizes PFINDER. It is also the ingenuity "Made in Germany" which PFINDER stands for.

Special products are not created in secret. PFINDER maintains intensive contact with users. Cutting edge ideas are developed in partnership with customers and tested together. No wonder that PFINDER is considered a solution finder.

After all, developing, seeking and researching are part of the company's roots. This allows the traditional company to establish maximum proximity to the end customer. Those who choose PFINDER products receive leading technologies in OEM quality. PFINDER successfully transfers the experience it has gained over the years in the automotive sector to other industries: To the general industrial sectors as well as to oil and gas, power generation and the aerospace industries.

PFINDER attaches importance to modern production processes with the highest quality and safety standards.

PFINDER

PFINDER: Locally - for you

We manufacture locally and offer premium customer service worldwide through our proximity to the user. Our products are quickly available through PFINDER's warehouses and local distribution partners, wherever they are needed.

- Sales & Engineering
- Research & Development
- Production
- Warehouse

HEADQUARTERS GERMANY

Rudolf-Diesel-Straße 14
71032 Böblingen
Phone + 49 7031 2701-999

USA

1230 Peachtree Street NE
Atlanta, GA 30309
Phone +1 586 484 4382

CHINA

No. 918 Xinjin Road
Qingpu Industrial Zone
Shanghai
Phone +86 159 5753 5948

MEXICO

Blvd. Antonio de Deza y Ulloa
103 Int 1A, Cuarto Barrio
Huejotzingo, Puebla
Phone + 52 221 100 8645

The GREEN NDT label shows PFINDER's dedication to work safety, the environment and cost efficiency

Sustainability without compromise

For more than 25 years, PFINDER has been offering readily biodegra-dable penetrants that are particu-larly environmentally friendly. This saves the customer energy-intensive wastewater treatment processes.

PFINDER's consumables for magnetic particle and penetrant testing have always impressed with their particular ease of use and outstanding cost-effectiveness. Since many years, the GREEN NDT philosophy is PFINDER's top priority in all developments of its products and services. The GREEN NDT label shows PFINDER's dedication to work safety, the environment and cost efficiency.

Some questions our experts consider are "Can we use particularly safe raw materials so that the final product will not be considered as hazardous? Can we use raw materials from regenerative sources? How can our products help saving costs in the process?" And they are ongoing improving.

This is what makes PFINDER a pioneer and leads to impressive solutions: PFINDER was the first manufacturer in the world offering readily biodegradable NDT consumables. PFINDER brings products completely free of hazardous components to the market ("safer than any household cleaner!")

Moreover, PFINDER's consumables for magnetic particle and penetrant testing generally meet or exceed the requirements of all relevant standards and specifications. This is truly sustainable. This is "thinking ahead" at its best."

Discover PFINDER's holistic GREEN NDT approach, designed to optimize work safety and environmental impact without compromising technical performance. Since 2015, this initiative has advanced sustainable consumables for Magnetic Particle and Penetrant Testing (MT/PT), promoting safer, eco-friendly, and cost-efficient solutions.

Make your process ready for the future

- Technically leading performance
- Care for environment
- Best health and safety conditions
- Highest cost efficiency

Process Description

1. Precleaning
Contaminants such as scale, rust, oil, grease, paint or water shall be removed if necessary using mechanical or chemical methods, or a combination of these. Precleaning shall ensure that the test surface is free from residues and that it allows the penetrant to enter any discontinuity.

2. Application of penetrant
The penetrant can be applied to the part to be tested by spraying, brushing, flooding, dipping or immersion. The penetrant shall remain on the test surface throughout the entire penetration time.

3. Penetration time
The appropriate penetration time depends on the properties of the penetrant, the application temperature, the material of the part to be tested and the discontinuities to be detected. It is usually between 5 – 60 minutes.

4. Excess penetrant removal
The excess penetrant is removed from the test surface with water or approved cleaner. The excess penetrant removal shall be such that penetrant remains in the discontinuities. Control under UV light (≥ 100 µW/cm² and < 100 lx) respectively daylight or white light (≥ 350 lx).

5. Developing
The developer shall be maintained in a uniform condition during use and shall be evenly applied to the test surface. The development times should usually be between 10 - 30 minutes. It begins immediately after application, when dry developer is applied and immediately after drying of the developer layer, when a wet developer is applied.

6. Inspection
Indications are produced during the developing. Inspection shall be carried out when the development time has elapsed. The indications become visible when using fluorescent penetrants under UV light (≥ 1000 µW/cm² and < 20 lx) or when color contrast penetrants are used under daylight / white light (≥ 500 lx). Evaluation and documentation may be done by any adequate method.

Method‘s advantages

- High variety of material applications
- Fast inspection of large areas and large number of parts
- Detection of smallest surface defects with high sensitivity

PROCESS DESCRIPTION POSTER

COLOR CONTRAST PENETRANT TESTING: PRODUCTS

What is penetrant testing?

Penetrant testing is a method of non-destructive material testing, in which defects that are open to the surface can be revealed with the aid of so-called penetrants or test media. A distinction is made between color contrast penetrant testing (also known as dye penetrant inspection or red-white testing), which uses red dye penetrants that are visible in daylight, and fluorescent penetrant inspection, which uses dyes that show defects under UV light by a yellow-green indication.

PFINDER 860

COLOR CONTRAST PENETRANT | RED
Type II | Sensitivity Level 2

- Readily biodegradable - no waste water treatment required
- Nearly odourless
- Aerosol spray can with minimized carbon footprint

- Bright, sharp indications with high contrast
- Easily rinsability = low background flourescence
- Reduced consumption due to low viscosity

500-ml-spray can
5-l-canister
200-l-drum

PFINDER 800

COLOR CONTRAST PENETRANT | RED + FLUORESCENT
Type II+III | Sensitivity Level 2

- Readily biodegradable - no waste water treatment required
- Nearly odourless
- Aerosol spray can with minimized carbon footprint

- Bright, sharp indications with high contrast
- Easily rinsability = low background flourescence
- Reduced consumption due to low viscosity

500-ml-spray can
5-l-canister
200-l-drum

PFINDER

All PFINDER products for penetrant testing conform to EN ISO 3452-2 | VDA236-150 | ASTM E165 | ASTM E1417 | ASME V Art.6 | PMUC. For details please check the relevant product information sheets.

PFINDER 871

DEVELOPER
SOLVENT BASED

- Aerosol spray can with minimized carbon footprint
- Low consumption due to high opacity
- Readily biodegradable

- Excellent developing properties
- Quick-drying
- Easily removable with water or by wiping off

AMS 2644 approved

500-ml-spray can
10-l-canister

PFINDER 890

PRECLEANER AND REMOVER

- Aerosol spray can with minimized carbon footprint

- Powerful all-purpose cleaner
- Approved remover of PFINDER penetrants
- Particularly suitable remover of PFINDER contrast paint

AMS 2644 approved

500-ml-spray can
5-l-canister

PFINDER 895

REMOVER

- Mild odour
- Aerosol spray can with minimized carbon footprint

- Powerful cleaner
- All-purpose use

AMS 2644 approved

500-ml-spray can

What is fluorescent penetrant testing?

The selection of a penetrant type depends on the requirements for the part being inspected. To use a fluorescent or color contrast penetrant will come down to a number of factors, including the following: The nature of the flaws to be detected, the environment where the tests will be performed and the number of parts to be inspected. The constant inspection of a large number of parts with small and difficult-to-find faults would usually require a testing line using a UV fluorescent penetrant with a darkened inspection area and UV light as part of a production process.

PFINDER 900 series - the proven industrial standard:

PFINDER 900

PENETRANT | FLUORESCENT
Type I | Sensitivity Level 0,5

- Readily biodegradable – no waste water treatment required
- Nearly odourless
- Free of hydrocarbons and heavy metals

- Bright, sharp indications with high contrast
- Easy rinsability = low background fluorescence
- Reduced consumption due to low viscosity

5-l-canister
200-l-drum
1000-l-container

PFINDER 901

PENETRANT | FLUORESCENT
Type I | Sensitivity Level 1

- Readily biodegradable – no waste water treatment required
- Nearly odourless
- Free of hydrocarbons and heavy metals

- Bright, sharp indications with high contrast
- Easy rinsability = low background fluorescence
- Reduced consumption due to low viscosity

5-l-canister
200-l-drum
1000-l-container

PFINDER 902

PENETRANT | FLUORESCENT
Type I | Sensitivity Level 2

- Readily biodegradable – no waste water treatment required
- Nearly odourless
- Free of hydrocarbons and heavy metals

- Bright, sharp indications with high contrast
- Easy rinsability = low background fluorescence
- Reduced consumption due to low viscosity

500-ml-spray can
5-l-canister
200-l-drum
1000-l-container

Fluorescent penetrant testing is commonly used in the automotive and aerospace industries.

Water-based fluorescent penetrants: PFINDER 900W | PFINDER 901W | PFINDER 902W

PENETRANTS | FLUORESCENT
Type I | Sensitivity Level 0,5 - 1 - 2

- Free of hazardous components (e.g. PFINDER 900W)
- Readily biodegradable – no waste water treatment required
- Free of hydrocarbons and heavy metals

- Bright, sharp indications with high contrast
- Easy rinsability = low background fluorescence
- Reduced consumption due to low viscosity

5-l-canister
200-l-drum
1000-l-container

AMS 2644 approved - water washable fluorescent penetrants: PFINDER 922 | PFINDER 923

PENETRANTS | FLUORESCENT
Type I | Sensitivity Level 2 and 3

- Readily biodegradable – no waste water treatment required
- Nearly odourless
- Free of hydrocarbons and heavy metals

- Bright, sharp indications with high contrast
- Easy rinsability = low background fluorescence
- Reduced consumption due to low viscosity

5-l-canister
200-l-drum
1000-l-container

AMS 2644
approved

PFINDER 871

DEVELOPER
SOLVENT BASED

- Aerosol spray can with minimized carbon footprint
- Low consumption due to high opacity
- Readily biodegradable

- Excellent developing properties
- Quick-drying
- Easily removable with water or by wiping off

500-ml-spray can
10-l-canister

AMS 2644
approved

PFINDER 940

WET DEVELOPER CONCENTRATE
WATER SOLUBLE

- Water-based
- Readily biodegradable – no waste water treatment required
- Odourless

- Very good developing properties
- Concentrate – very efficient
- Easily water soluble, no agitation of immersion tank required

10-l-canister

PFINDER 945

DRY POWDER DEVELOPER

- No hazard classification/labeling acc. to EC regulation
- Odourless

- Excellent developing properties
- Easily removable by compressed air or water

10-l-pail

AMS 2644
approved

Process Description

1. Precleaning
Contaminants such as scale, rust, oil, grease or paint shall be removed if necessary using mechanical or chemical methods (e.g., with PFINDER 890), or a combination of these. It is important to ensure that the test surface is dry after precleaning.

2. Application of the white contrast paint (only for MT visible at daylight / white light)
The white contrast color increases the contrast. It is applied evenly to the test surface. The coating layer should be as thin as possible (max. 50 µm/dry). If the coating layer is too thick, the test result may be negatively affected. Allow the white contrast paint (only for MT visible at daylight / white light) to dry.

3. Magnetization and application of the magnetic particle suspension
Magnetization can be performed by hand magnets (e.g. PFINDER 15-0). Usually a tangential field strength of about 2 kA/m² is required. The magnetic particle suspension must be applied shortly before and during magnetization. The spraying / rinsing must be completed before the magnetization is switched off. The test surface must be sprayed / rinsed with so little pressure that indication is formed undisturbed. After the application, the magnetic particle suspension should be run off in a way that the visibility of indications is improved, e.g. by tilting the test surface.

4. Inspection
After the formation of the indications, they can be evaluated and documented in daylight /white light (≥ 500 lx) when using visible magnetic particle and under UV light (≥ 1000 µW/cm² and < 20 lx) when using fluorescent magnetic particles. Documentation may be done by any adequate method.

5. Post-cleaning and further treatment
In order to use the specimen for its intended purpose, it may be required to remove the suspension and the white contrast paint from the test surface (e.g., with PFINDER 890). It may be necessary to demagnetize the specimen and/or apply a suitable corrosion protection.

Method‘s advantages

- Instant results
- Direct visibility of the defect location
- Detection of surface and sub-surface defects

PROCESS DESCRIPTION POSTER

What is magnetic particle testing?

Magnetic particle testing (MT) is a method of non-destructive material testing, in which material defects that are close or open to the surface can be revealed with the aid of iron oxide particles. It is a simple and reliable method that is only suitable for ferromagnetic materials, e.g. iron (non-alloyed and low alloyed steels, cast steel, cast iron), cobalt and nickel. MT does not function on non-ferromagnetic materials, e.g. high alloyed (austenitic) steels, aluminum, copper, plastics, composites.

PFINDER 115

MAGNETIC PARTICLE CONCENTRATE | FLUORESCENT
Suspendable in water

- Free of hazardous components
- Odourless
- Free of sec. amines, nitrites and halogens

- Brilliant, quick and stable indications
- Low background fluorescence
- With effective corrosion protection

1-l-bottle
5-l-canister

PFINDER 113

MAGNETIC PARTICLE CONCENTRATE | FLUORESCENT
Suspendable in water | based on black magnetic particles

- Free of hazardous components
- Odourless
- Free of sec. amines, nitrites and halogens

- Brilliant, quick and stable indications
- Low background fluorescence
- Leaves no sticky residue after drying

1-l-bottle
5-l-canister

PFINDER 205

MAGNETIC PARTICLE CONCENTRATE | BLACK
Suspendable in water

- Odourless
- Free of sec. amines, nitrites and halogens

- Excellent sharp, quick and stable indications
- With effective protection
- Compatible with non ferrous materials

1-l-bottle

PFINDER

All PFINDER products for magnetic particle testing conform to EN ISO 9934-2 | ASME V Art.7 | ASTM E1444 | ASTM E709 | AMS 304x.
For details please check the relevant product information sheets.

PFINDER 251

MAGNETIC PARTICLE SUSPENSION | BLACK
Oil based

- Nearly odourless
- Free of silicone, sec. amines, nitrites/halogens
- Aerosol spray can with minimized carbon footprint

- Excellent sharp, quick and stable indications
- Product complies with all common specifications
- Compatible with non-ferrous materials

500-ml-spray can
5-l-canister

PFINDER 240

MAGNETIC PARTICLE SUSPENSION | BLACK
Water based

- No hazard classification/labeling acc. to EC regulation
- Aerosol spray can with non-flammable propellant
- Aerosol spray can with minimized carbon footprint

- Excellent sharp, quick and stable indications
- Very efficient: High net content per aerosol spray can
- Compatible with non-ferrous materials

400-ml-spray can

PFINDER 280

WHITE CONTRAST PAINT
Quick-drying

- Free of silicone, sec. amines, nitrites/halogens
- Aerosol spray can with minimized carbon footprint
- Low consumption due to high opacity

- Quick-drying
- High adhesion to all kind of materials and surfaces
- No cracking of paint at low temperature

500-ml-spray can

PFINDER 150

MAGNETIC PARTICLE SUSPENSION | FLUORESCENT
Oil based | ready to use

- Nearly odourless
- Free of silicone, sec. amines, nitrites/halogens
- Aerosol spray can with minimized carbon footprint

- Excellent sharp, quick and stable indications
- Low background fluorescence
- Compatible with non-ferrous materials

500-ml-spray can
5-l-canister

PFINDER 170

MAGNETIC PARTICLE CONCENTRATE | FLUORESCENT
Suspendable carrier oil

- Odourless
- Free of sec. amines, nitrites and halogens

- Excellent indications with low background fluorescence
- Compatible with non-ferrous materials

1-l-bottle

PFINDER 550

CARRIER OIL

- High flashpoint > 100°C
- Nearly odourless

- Low viscosity
- Free from fluorescence

30-l-canister
200-l-drum

PFINDER 500

CORROSION PROTECTION ADDITIVE
FOR WATER BASED MEDIUMS

- No hazard classification/labeling acc. to EC regulation
- Odourless
- Free of sec. amines, nitrites and halogens

- Individual adjustment of corrosion protection properties

5-l-canister
200-l-drum

PFINDER 520

ANTIFOAMING AGENT
CONCENTRATE

- No hazard classification/labeling acc. to EC regulation
- Odourless
- Free of sec. amines, nitrites and halogens

- Highly effective foam elimination
- Highly concentrated – very efficient

1-l-bottle

PFINDER 530

ADDITIVE CONCENTRATE
WATER SOLUBLE

- Odourless
- Free of sec. amines, nitrites and halogens

- Individual adjustment of corrosion protection properties
- Improvement of wetting properties
- Optimized foaming properties

5-l-canister

PFINDER 73 ProLight

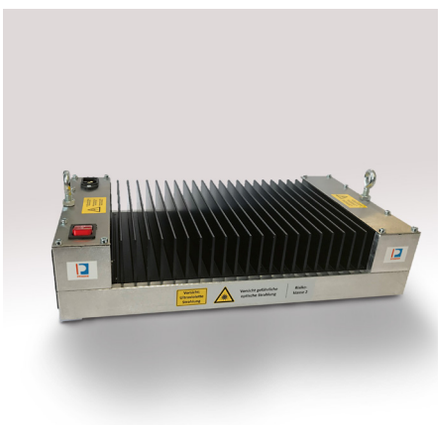
MOBILE UV LED LAMP
BATTERY OPERATED

- Worldwide available standard battery system (CAS)
- Risk class 2 according DGZfP EM6
- Ergonomic weight balance

- Exceptional large and even radiation area
- Lightweight, handy and very powerful
- Quick charging standard battery

CONTENT OF DELIVERY
UV LED lamp, rapid charger
User's manual
Hard case

PFINDER 70



STATIONARY UV LED LAMP

- Powerful with robust design
- Very even radiation area
- Durable UV LED technology

CONTENT OF DELIVERY
UV LED stationary lamp
User's manual
Connection cable

Gossen Mavomaster

DUAL UV AND WHITE LIGHT METER

- Dual sensor head for white light and UV measurement
- Fluorescent button lettering for an excellent visibility
- Both factory and DAkkS calibartion certificates are available

CONTENT OF DELIVERY
Dual UV and white light meter with sensor head
User's manual
Hard case

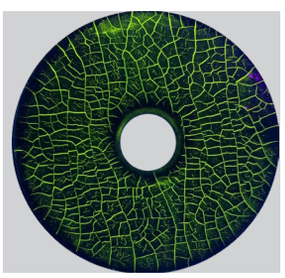
PFINDER 15-0

AC HAND YOKE 230 V

- Light but powerful
- Very flexible use
- Replaceable, articulated legs

CONTENT OF DELIVERY
Hand yoke
User's manual

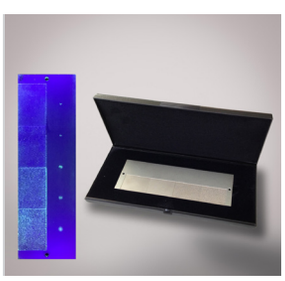
REFERENCE TEST BLOCK NO. 1 (MAGNETIC PARTICLE TESTING)



ACCORDING TO EN ISO 9934-2 APP. B
INCL. CERTIFICAT

CONTENT OF DELIVERY
Reference test block no. 1 with case
Certificate of conformity

REFERENCE TEST BLOCK NO. 2 (PENETRANT TESTING)



ACCORDING TO EN ISO 3452-3
INCL. CERTIFICAT

CONTENT OF DELIVERY
Reference test block no. 2 with case
Certificate of conformity

ANALYTICAL TEST SERVICES

MONITORING THE QUALITY OF IN-USE TEST MEDIA

- Professional sample handling by quality experts
- Ensuring continued compliance to relevant standards
- Results quickly available in a written report

CONTENT OF DELIVERY
Analytical test report acc. to the requirements of standards
e.g. EN ISO 3452-2 | AMS 2644 | ASME E1417

REFERENCES / SOCIETIES / STANDARDIZATION COMMITTEES

PFINDER is member of the following standardization committees:

National	NA 062-08-24 AA	(Electrical and magnetic testing methods)
	NA 062-08-25 AA	(Surface methods)
International	CEN/TC 138/WG 04	(Penetrant Testing)
	ISO/TC 135/SC 2	(Surface Methods)

USEFUL QUICK LINKS

WEBSITE

GREEN NDT

NEWSLETTER SUBSCRIPTION

LINKEDIN

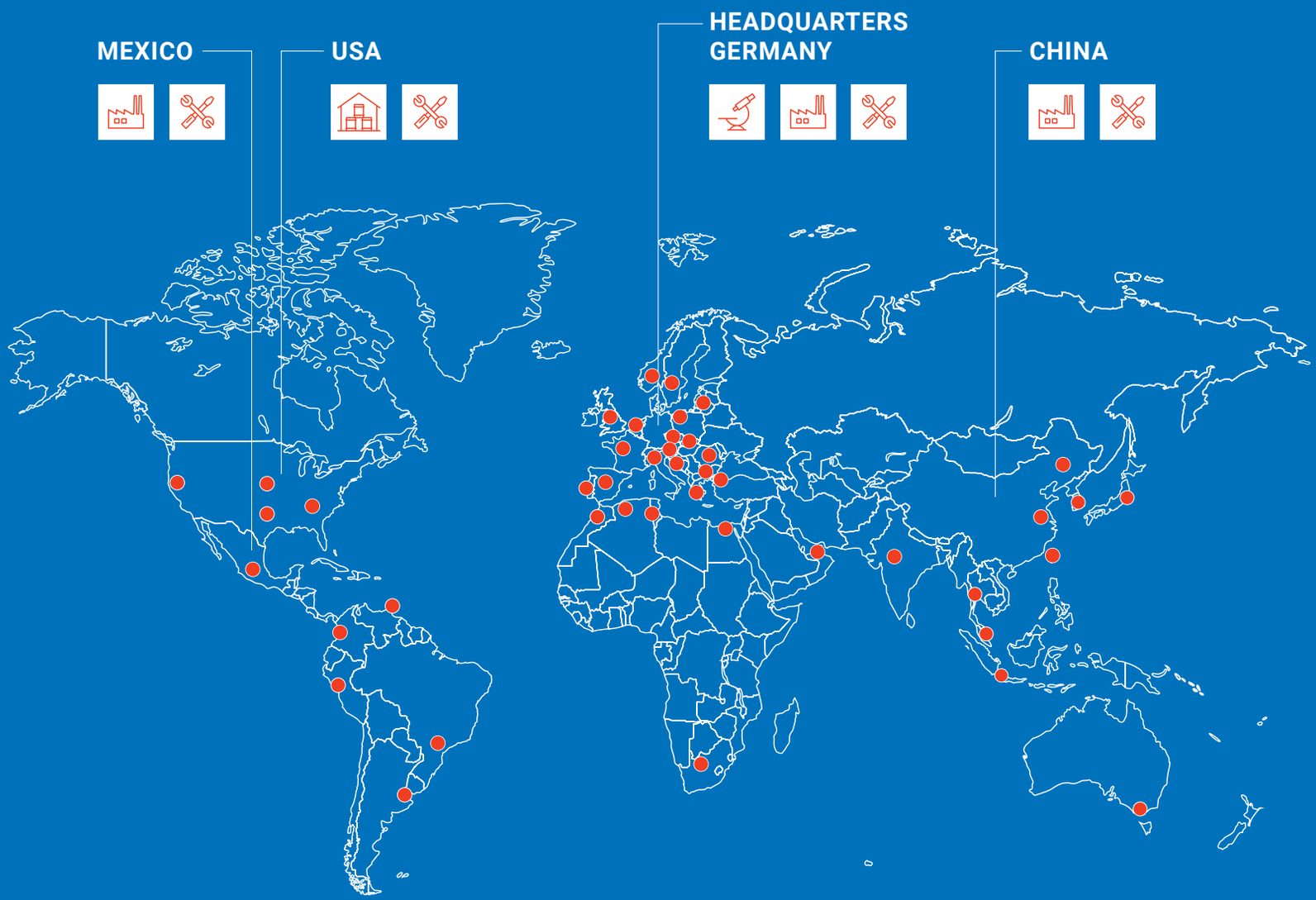
QUALITY CERTIFICATES

- **ISO 9001:2015**
- **ISO 14001:2015**
- **IATF 16949**
- **ISO 45001:2018**

CERTIFICATES OF CONFORMITY BATCH CERTIFICATES

YOUR LOCAL CONTACT

PFINDER: AVAILABLE - WHEREVER YOU NEED US



Sales & Engineering

Research & Development

Production

Warehouse

Distribution partners

PFINDER KG
Rudolf-Diesel-Straße 14
71032 Böblingen
Germany
Phone +49 7031 2701-999

PFINDER US LP
1230 Peachtree St. NE
Atlanta, GA 30309
USA
Phone +1 586 484 4382

PFINDER MEXICO S. DE R.L. DE C.V.
Blvd. Antonio de Deza y Ulloa 103
74160 Huejotzingo, CP
México
Phone +52 (22) 1100 8645

PFINDER CHEMICAL CO LTD.
No. 918 Xinjin Road
Qingpu Industrial Zone, Shanghai
China
Phone +86 159 5753 5948

PFINDER
www.pfinder-ndt.com

Version 12.2025

THINKING AHEAD SINCE 1884.