



**KD-Check Penetrants**  
Liquid Penetrant Testing

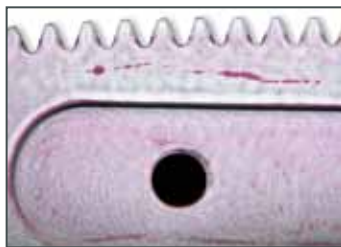
**KARL DEUTSCH**

# KD-Check

## ... if cracks shall be detected with liquid penetrants testing



KD-Check agents in spray cans



Crack indication obtained with the red-white method



Fluorescent penetrant according to EN ISO 3452 und AMS 2644



Extensive Documentation\*

Liquid Penetrant Testing is a nondestructive testing (NDT) method, which enables the visualization of surface cracks if the defect is open to the surface. Inhomogenities in the volume cannot be detected.

Mainly metals, but also plastics and ceramics can be inspected with liquid penetrant testing. It is recommended to execute a tolerance check on plastics before beginning the inspection.

The method is very sensitive. Cracks or pores with typical widths between 0.5  $\mu\text{m}$  and 10  $\mu\text{m}$  and depths between 20  $\mu\text{m}$  and 200  $\mu\text{m}$  can be detected by means of the liquid penetrant testing method.

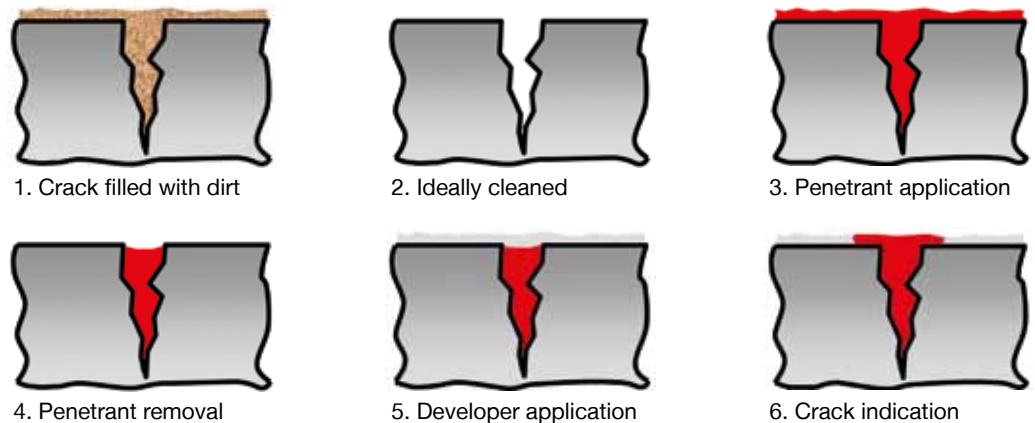
### Dye penetrant testing (red-white method)

Red penetrants are often used because of the easy handling. Only one spray can of cleaner, penetrant and developer is required for inspection in each case. Therefore, the penetrant method is well suited for **on-site inspections, in case of maintenance and for random tests**. The evaluation is carried out in normal daylight.

### Fluorescent penetrant testing

Due to higher sensitivities of fluorescent test liquids this method is mainly applied for the **serial inspection of safety relevant objects**, e.g. in the aerospace and automotive industry. By means of stationary testing systems a large number of objects can be tested reproducibly within a short time. The testing sensitivity is further increased by using dry developers which are applied electrostatically.

### Steps of liquid penetrant testing according to EN ISO 3452



### KD-Check agents are...

- free of CFC / CHC (do not contain any OLDS)
- applicable considering the TRGS 614 (Technical Rules for dangerous substances: Application limits for defined azo dyes)
- manufactured according to EN ISO 9001
- listed according to AREVA NP TLV 9017
- are marked with 'Low sulfur and halogen content according to EN ISO 3452' concerning corrosive components (sulfur, fluorine and chlorine), and complies with the requirements of ASME-Code Section V, Article 6

\* Material Safety Data Sheets and Technical Informations can be downloaded from [www.karldeutsch.de](http://www.karldeutsch.de) » Downloads » Chemical Products

Dye Penetrant, Water and Solvent Removable					
	Container	Art. No.	Cleaner	Developer	Standards, Approvals
<b>KD-Check RDP-1</b> red	500 ml spray can	9901.1	PR-1, PR-2 or water	SD-1	EN ISO 3452
	5 l canister	9901.5			
	10 l canister	9901.2			
	200 l barrel	9901.3			

Fluorescent Penetrant, Water and Solvent Removable					
	Container	Art. No.	Cleaner	Developer	Standards, Approvals
<b>KD-Check FWP-1</b> fluorescent	500 ml spray can	9904.1	PR-1, PR-2 or water	SD-1, DD-1	EN ISO 3452
	5 l canister	9904.5			
	10 l canister	9904.2			
	200 l barrel	9904.3			
<b>KD-Check FWP-2</b> fluorescent	10 l canister	9909.1	PR-1, PR-2 or water	SD-1, DD-1	Level III acc. to AMS, QPL 2644 (formerly MIL-I-25135) EN ISO 3452
	200 l barrel	9909.2			

Fluorescent Penetrant, Post-emulsifiable					
	Container	Art. No.	Emulsifier	Developer	Standards, Approvals
<b>KD-Check FNP-1</b> fluorescent	10 l canister	9905.1	HE-1	SD-1, DD-1	EN ISO 3452
	200 l barrel	9905.2			
<b>KD-Check HE-1</b> hydrophilic water-based emulsifier	10 l canister	9906.1	post-emulsifiable methods	--	EN ISO 3452
	200 l barrel	9906.2	2 % to 20 % in water		

Cleaner					
	Container	Art. No.	Application		Standards, Approvals
<b>KD-Check PR-1</b> solvent-based cleaner (petrol)	500 ml spray can	9902.1	Pre-cleaning and penetrant removal, all methods.		EN ISO 3452
	5 l canister	9902.5	Especially well suited for the removal of		
	10 l canister	9902.2	oily contaminations.		
	200 l barrel	9902.3			
<b>KD-Check PR-2</b> solvent-based cleaner (alcohol / ketone)	500 ml spray can	9907.1	Pre-cleaning and penetrant removal, all methods.		EN ISO 3452
	5 l canister	9907.5	Especially well suited for the removal of		
	10 l canister	9907.2	synthetic cooling lubricants, fast-drying.		
	200 l barrel	9907.3			

Developer					
	Container	Art. No.	Application		Standards, Approvals
<b>KD-Check SD-1</b> solvent-based	500 ml spray can	9903.1	for all penetrants		EN ISO 3452
	5 l canister	9903.5			
	10 l canister	9903.2			
<b>KD-Check DD-1</b> dry developer	1 kg drum	9908.1	for all fluorescent penetrants		AMS, QPL 2644 (formerly MIL-I-25135) EN ISO 3452
	20 kg barrel	9908.2	(not for dye penetrants)		

# Accessories for Liquid Penetrant Testing and Systems



Reference test block 1

## Reference test blocks \*

We provide a comprehensive range of reference blocks for all established standards (EN ISO 3452, AMS, ASME, ASTM, etc.).

## UV lamps \*/\*\*

We offer for the different applications the appropriate UV lamps: UV-LED lamps as well as UV lamps with conventional technique, large area lamps for stationary inspection tasks and hand lamps for the mobile inspection.



UV-LED hand lamp



Reference test block 2

## Further accessories \*

Pressure containers with and without mixer (incl. spray guns), spray nozzles for powder, spray caps for aerosol cans, electrostatic devices for agents and developer, etc.

## Test systems \*/\*\*

We manufacture standard and customized test systems as well as systems for singular and mass inspection.

**Our completely equipped technical center is open for our customers for experiments. All methods - from testing of individual components to automatic inspections - can be offered.**

\* Technical specifications and order information on request

\*\* Leaflets on request



Aluminum test block ASME



KD-Check test system



KD-Check test system, semi-automatic

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