



Directions for use

DIFFU-THERM[®] Method for non-destructive testing Red-White penetrant method (BDR - GL)

Approved and accepted according to
DIN EN ISO 3452-2 and DIN 54 152 part 2 corresponding to MIL-I-25135C
Penetration method to DIN EN ISO 3452-1 [EN 571] = **IIIAc, IIIAe, IIICc, IIICe, IIIEc, IIIEe**
According to DIN EN ISO 3452-3 **sensitivity class 2**
Under UV-light a sensitivity class 2
Penetration method to DIN 54 152 part 1 = **CAB + CBB + CCB + CCC**
According to DIN 54 152 part 3 **sensitivity class 4**
Free of chlor, fluor and sulphur to ASTM - Code Section V

Scope

DIFFU-THERM is a non-destructive method, used for the detection of faults such as cracks, flaws, pores, lap joints, micro-contractions, bonding-faults and similar defects, which have an opening to the material's surface. The method is applicable to finished or semi-finished products as well as to used metal or metalloid parts. Defects become visible in red on a white background.

Sequence of operations

1. Pre-cleaning
2. Penetration
3. Intermediate cleaning (removal of penetrant)
4. Drying
5. Developing
6. Inspection

1. Pre-cleaning

The surface to be tested must be cleaned only superficially so that the penetrant

Diffusion Red BDR - GL can penetrate into the existing faults.

Tinder, slag, rust, etc. are removed by brushing, sanding, sanding and, in exceptional cases, blasting or similar methods. In any case, make sure that the errors are not closed by the cleaning.

If necessary, a subsequent pickling treatment should be carried out.

Small amounts of oil or fat residues may remain on the specimen surface, they are coloured by the penetrant. If pickling of the parts to be tested is necessary, the parts must then be neutralized and thoroughly rinsed. To complete the pre-cleaning, the parts to be tested must be dried in such a way that neither water nor detergent remains in the defects.

2. Penetration

The penetrant Diffusion **Red BDR - GL** is in any way, for. B. by spraying, brushing o-rinsing, applied to the parts to be tested or you immerse the parts in the penetrant. On the complete wetting of the surface is to pay attention.

The penetration time is completed when the carrier liquid of the penetrant on the test surface has evaporated. This can be seen when the colour fades.

The penetration time depends on the test temperature. At lower temperatures the penetration time is automatically increased due to the slower evaporation of the carrier liquid.

The test temperature can be in the range of -10 ° C to 50 ° and above about 100 ° C.

3. Intermediate cleaning (removal of penetrant)

The dried penetrant is completely removed by rinsing or spraying with water from the surface. In case of intensive cleaning with **BRE, BRE - 2** or **BRE - 3** cleaner care must be taken that the penetrant is not washed out of small depth defects.

p.t.o.

4. Drying

After removing the dried diffusion red **BDR - GL** with water, the surface is dried with a non - fibrous cloth or compressed air. The drying process can be omitted if the cleaning is done with a cleaner that dries due to its evaporation.

5. Developing

Immediately after drying, the developer **BEA**, **BEA - N** or **BEA - W** is sprayed on evenly and as thinly as possible. For spraying, the handy spray cans or compressed air sprayers are particularly suitable.

The development time depends on the test temperature. At lower temperatures, it automatically elongates due to the slower evaporation of the carrier liquid.

The development process is over shortly after the developer is dry.

7. Inspection

After the development time has elapsed, the test surface is searched for ads in the developer layer. In addition, the assessment can also be done under UV light. The displays will show up as red dots or lines that may spread during development time with larger errors.

Note:

When using the developer **BEW** (permanent) (**IIIAf**, **IIICf**, **IIIEf**), the error displays are kept longer lasting, for any photographic documentation, more durable.

From the diameter, the width or the intensity of the display, the size of the fault opening can be limited only to a limited extent, on the depth in no case.

In certain cases, z. B. if errors of different dimensions are to be detected, it is expedient to make a first visual inspection after the application of the developer. This ensures that the inspection of large ads can be better interpreted.

Before any painting, the surface must be thoroughly cleaned of the penetrant.

Otherwise colour breakdown.