



**Procedure For The
Dye Penetrant Testing Of Steel Forgings
To BS EN 10228-2:2016**

SAMPLE ONLY - NOT FOR PRODUCTION USE

**FULL PROCEDURE AVAILABLE TO
PURCHASE FROM www.n-d-t.com**

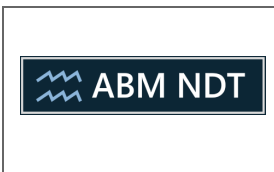
Authored By: A Sample PCN Level 3 (XXXXXX)	Authorised For Use By:
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DYE PENETRANT INSPECTION PROCEDURE

Reference: PROC/GEN/PT/10228-2:2016 Issue:01 | Date of Issue: **SAMPLE**

1. Scope

This procedure describes the method of dye penetrant inspection of products manufactured from forged steel material. This procedure must be adhered to as applicable to ensure customer requirements are met and that compliance with orders received is achieved.

This procedure covers the liquid penetrant testing of as-forged bars, billets and sections as well as products machined from forged or wrought material i.e. shafts, fasteners, gears, spindles, etc.

This procedure only covers newly manufactured products and is not to be used for inservice inspection.

This specification is applicable to solvent removable and water washable colour contrast (red) dye penetrants and fluorescent dye penetrants used in conjunction with the non-aqueous wet developer method.

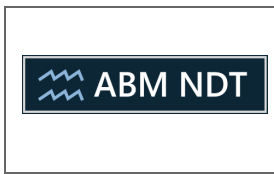
2. Applicable Documents

BS EN 10228-2:2016 Testing	Non-destructive testing of steel forgings Part 2: Penetrant Testing
ISO 9712:2012 NDT personnel.	Non-destructive Testing – Qualification and certification of
BS EN ISO 3452-1:2013 principles	Non-destructive testing. Penetrant testing. General
BS EN ISO 3452-2:2013 penetrant materials	Non-destructive testing. Penetrant testing. Testing of
BS EN ISO 3452-4:1999	Non-destructive testing. Penetrant testing. Equipment
BS EN ISO 12706:2009	Non-destructive testing. Penetrant testing. Vocabulary
BS EN ISO 3059:2012. particle testing. Viewing conditions.	Non-destructive testing. Penetrant testing and magnetic

Controlling document highlighted in bold.

3 .Safety

Personnel working to this procedure shall work in such a manner as to comply with the Health and Safety at Work act (1974)



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All consumables used shall have accompanying COSHH data sheets and shall be disposed of in a way that is non-injurious to site personnel or to the environment.

Personnel working to this procedure shall at all times wear mandatory PPE; overalls, safety boots, hard hat, high visibility clothing, etc.

Because of the flammability of most liquid penetrant materials the use of an open flame for heating components prior to liquid penetrant examination is prohibited.

Any equipment that requires the use of mains electricity shall have successfully passed a PAT test within the last 12 months and be in good working condition.

Highly volatile solvents are to be used with caution. Their vapours are relatively toxic and the liquids are primary skin irritants. Extreme care is to be exercised in handling volatile solvents as many of them are highly flammable liquids. The appropriate safety precautions are to be carried out at all times.

4. Personnel qualification

Operators trained and qualified in dye penetrant inspection (covering forgings and wrought products) to PCN (ISO 9712) Level 2 will be employed to carry out penetrant inspection in accordance with this procedure.

Non-destructive testing operations shall be authorised by a supervisory individual qualified to ISO 9712 Level 3. E.g. PCN Level 3 in the dye penetrant method.

All personnel shall meet the eyesight requirements of ISO 9712 Part 7.4 and shall be certified annually to ensure this.

Documentation relating to operators shall be kept on file at the administration offices for review purposes

5. Description of method

Liquid penetrant inspection is a method of non-destructive testing which provides for the detection of flaws which are open to the surface in non-porous materials. Typical flaws which are detectable are cracks, seams, laps, cold shuts, laminations, lack of fusion, porosity etc. A liquid penetrant is applied to the surface to be examined and allowed to enter flaws, excess penetrant is removed using a suitable solvent, then the part is dried and a developer applied. The developer, when dry, will indicate escaping penetrant trapped in discontinuities so that defects are enhanced visually and may be more readily located and assessed.