VISUAL TESTING OF WELDS DURING WELDERS QUALIFICATION. SHALL BE EXAMINER CERTIFIED AS NDT SPECIALIST?

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Abstract
According to EN 287-1 welder in order to be qualified shall pass practical exam performing welding of test pieces. Each completed weld shall be tested by NDT and/or destructive testing such as visual testing, radiographic testing, bend test, fracture test.

As distinct from other methods visual testing very often is conducted right after the welding by examiner. A question is raised: should be examiner certified or not? EN 473 :2008 clear defines visual testing as one of NDT method on which individual performing industrial non-destructive testing should be certified. The term ‘industrial’ implies the exclusion of applications in the field of medicine only. International Institute of Welding has another opinion on this matter. IIW assumes that as far as examiner does not conduct NDT as it is, certification is not needed. Authors are trying to hunt down a question taking into account provisions of both standards and practical experience.

Keywords: Welder Qualification Test, Visual Testing, Certification of Examiner

1. Background
It is very simple to understand that individual performing NDT shall be certified/qualified according to particular standard: EN 473 [1] / ISO 9712 [2] – general principles, EN 4179 [3] – aerospace, ISO 11484 [4] – steel products. Certification confirms that certificate holder fulfills requirements to knowledge, skill and health. It is very important both for employer and certificate holder. But in some cases a problem can be occurred.

2. Visual testing during welder qualification test
Lets take welder qualification test. According to EN 287 [5] the welding of test pieces shall be witnessed by the examiner or examining body. Each
completed weld shall be tested according to Table 1 in the as-welded condition. If the weld is accepted by visual testing, the additional test(s) according to Table 1 shall all be carried out. Visual testing very often is conducted right after the welding by examiner.

Examiner shall conduct visual testing of welded test pieces according to EN 970 and decide whether quality requirements of level B EN ISO 5817 are met or not. In other words examiner makes a decision about quality of weld in terms of visual testing, i.e. detection of critical defects, their characterization (type, position, orientation, dimensions, etc.) and evaluation against code, standard, specification or procedure criteria. Examinee shall have no doubts regarding validity of examiner’s conclusion. In other case he has the right to call down decision in case of failure.

**Table 1. Test methods**

<table>
<thead>
<tr>
<th>Test method</th>
<th>Butt weld (in plate or pipe)</th>
<th>Fillet weld and branch connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual testing according to EN 970</td>
<td>mandatory</td>
<td>mandatory</td>
</tr>
<tr>
<td>Radiographic testing according to EN 1435</td>
<td>mandatory</td>
<td>not mandatory</td>
</tr>
<tr>
<td>Bend test according to EN 910</td>
<td>mandatory</td>
<td>not applicable</td>
</tr>
<tr>
<td>Fracture test according to EN 1320</td>
<td>mandatory</td>
<td>mandatory</td>
</tr>
</tbody>
</table>

Moreover EN 970 stipulates that personnel performing visual testing shall meet following requirements: practical experience, visual requirements that are subject for checking annually. It is particularly the same as eligibility requirements of EN 473. Examiner shall have the specific knowledge on visual testing and use measuring tools defined by EN 970.

**3. To be certified or not?**

EN 287 defines that examiner is a person who has been appointed to verify compliance with the applicable standard. No more requirements are given in the standard. Accreditation bodies have no clear answer as well. International Institute of Welding (IIW) providing qualification of welding personnel has a guideline IAB-089 [6] which defines who can be an examiner for welder qualification. According to this guideline welder qualification includes EN 287 qualification test. IIW says that examiner is an appointed competent person who shall be responsible for the functions one of which is **visual examination of the welds and reporting the results**. Authorized examiners shall be qualified to at least the level of International Welding Specialist (IWS). IWS level is defined only by basic education and practical experience in welding. Again no requirement to certified on visual testing.
But EN 473:2008 clear defines visual testing as one of NDT method on which individual performing industrial non-destructive testing should be certified. Direct unaided visual tests and visual tests carried out during the application of another NDT method are excluded. The term ‘industrial’ implies the exclusion of applications in the field of medicine only. Visual testing of welded test pieces during welder qualification test can be put down for industrial testing because welder qualification test it’s industrial process. In order to perform his duty examiner shall have appropriate qualification: physical attributes, knowledge, skill, training and experience. And this qualification should be confirmed by certification. Only in this case the qualification test will be legit.

Examiner as individual certificated to level 2 will have competence to perform visual testing according to EN 970, in particular:

- Select measuring tools and gages.
- Define the limitations of application of the testing method.
- Perform the test.
- Interpret and evaluate results according to EN ISO 5817.
- Report the results.

The problem can be with confirmation of industrial experience, renewal and recertification. But industrial experience - experience, needed to acquire the skill and knowledge to fulfill the provisions of qualification. As examiner takes part in qualification tests he gains experience in visual testing of test pieces as well. For the same reason he has no significant interruption in the visual method. So, certification can be renewed and recertification can be conducted.

4. Conclusion.

In order to provide legality of welder qualification test examiner shall be certified to Level 2 on visual testing according to EN 473.

5. References


