Qualification of welders under the ISO system.

ISO 9606-1 – Steels.
ISO 9606-2 - Aluminum and aluminum alloys.
ISO 9606-3 - Copper and copper alloys.
ISO 9606-4 - Nickel and nickel alloys.
ISO 9606-5 - Titanium and titanium alloys, zirconium and zirconium alloys.

Scope is ISO 9606-1.

• This part of ISO 9606 specifies the requirements for qualification testing of welders for fusion welding of steels.

• It provides a set of technical rules for a systematic qualification test of the welder.

• And it enables such qualifications to be uniformly accepted independently of the type of product, location and examiner or examining body.

Examiner.

• **Examiner**
  Person appointed to verify compliance with the applicable standard.

• **NOTE** In certain cases, an external independent examiner can be required.
  [ISO/TR 25901:2007, 2.119]
Examining body

- Organization appointed to verify compliance with the applicable standard.

- NOTE In certain cases, an external independent examining body can be required. [ISO/TR 25901:2007, 2.120]

Possible Examiners

- Classification Societies and/or Notified Bodies as:
  - Veritas.
  - Det Norske Veritas.
  - Lloyds Register.
  - RTD Applus.
- Certified Trainings center’s.

Definition of NoBo

- **Notified Body**
  - organization that has been accredited by a Member States to assess whether a product meets certain preordained standards.
  - Assessment can include inspection and examination of a product, its design and manufacture.

- Examples:
  - Pressure equipment (PED)
  - Civil construction (CPD)

Definition of Classification society

- **classification society**
  - non-governmental organization that establishes and maintains technical standards for the construction and operation of ships and offshore structures.

  - The society will also validate that construction is according to these standards and carry out regular surveys in service to ensure compliance with the standards.
Possible Examiners
Examiner as Notified Bodies or Classification Society
The welder can weld in other workshops because this No Bo is an acceptable examining body for almost everybody.

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Possible Examiners
• Examiner is a certified Trainings center.
  • This trainings centers are Accredited Welder Test Centers, this centers are approved by a NoBo the and have a quality system to ensure the quality.

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Competence of examining personnel
The International Institute of Welding (IIW) wrote a guideline for Personnel acting as examiners of welding qualification tests requires adequate knowledge about:
  – The welding processes to be used.
  – Imperfections of the welding processes.
  – NDT techniques.
  – Relevant standards or specifications.
  – Possibilities of retesting and the number of permitted tests.

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Tasks of the examiners acc. IIW.
• Task before welding
  – Checking the identity of the welder.
  – Checking suitability of instructions e.g.. WPS.
  – Establishing that welder knows what has to be done.
  – Ensure that all aspects are in comply with WPS:
    • parent material grade.
    • Joint preparation.
    • Marking of test pieces welding position etc.
Tasks of the examiners acc. IIW.

— Ensure that all aspects are on comply with WPS:
  • Checking the tack welds in test piece
  • Identification of the welding consumable
  • Checking the welding settings, wire feed, gas, etc.

Tasks of the examiners acc. IIW.

— Task during welding
  — Checking welding parameters, welding sequence.
  — Confirming stop/start positions are required in ISO 9606 series.
  — Ensuring that any repair of visual imperfections is within the test requirements of ISO 9606 series.
  — Verifying that weld is made in a time that is similar to that equivalent production weldment.

Tasks of the examiners acc. IIW.

• Task after welding
  — Ensuring that all markings are on the test piece.
  — Ensuring that all destructive and not destructive tests are carried out by certified personnel or accredited test facilities.
  — Check of the test records that all values are recorded and the acceptance requirements are fulfilled.
  — Where the test weld fails the requirements, arranging permitted retests by the standard.

Tasks of the examiners acc. IIW.

— Ensure that all necessary records are prepared, e.g., run weld details.
— Issue or authorize the certificate after verifying the range of qualification.
Qualifications that meet the requirements of Welding coordinators acc. ISO 14731 and Witnessing personnel acc. IIW doc SC-Qual-144r9-12.

- International Welding Engineer.
  - 441 hours of training.
- International Welding Technologist.
  - 362 hours of training.
- International Welding Specialist.
  - 242 hours of training.

NoBo or classification societies do have also their own training programs for people that doesn’t have one of this qualifications to authorize examiners for their company.

Resume.

- With this set of requirements for examiners for welder qualifications under ISO standards, ISO and IIW are trying to ensure the quality of the examiners of the welder qualifications.

- It’s already a proven system in Europe, and slowly it’s spreading out all over the world.