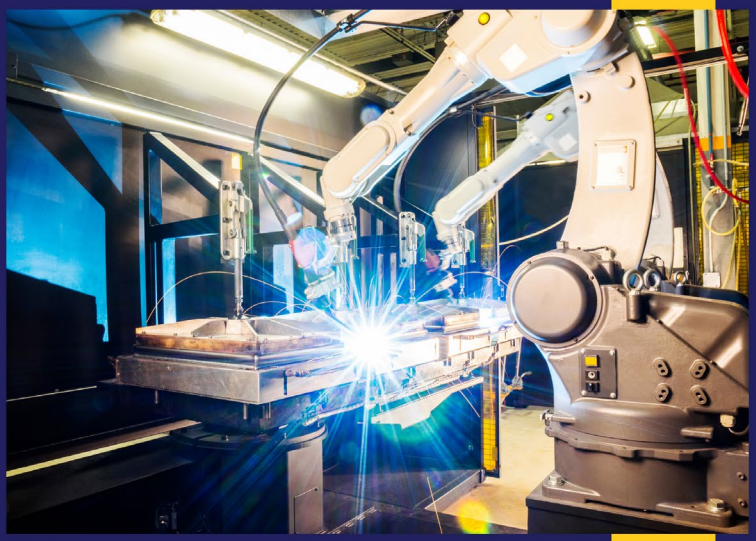
Weld Australia

A GUIDE TO AS/NZS ISO 9606

SECURING THE FUTURE OF AUSTRALIA'S WELDING INDUSTRY







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AS/NZS ISO 9606-1 *Qualification testing of welders—Fusion welding—Part 1: Steels* is a standardised method of testing a welder's skill against proven welding processes, materials, consumables and procedures.

What Is AS/NZS ISO 9606-1?

ISO 9606 1 utilises a simple test that assesses welding competency according to a specific weld procedure, based on a practical acceptance criteria. It can be used to test the competency of a welder to complete a variety of weld procedures, from a basic butt weld up to the most complex pipe joints, utilising various positions, processes and materials.

Under ISO 9606-1, welder competency testing is focused on the three key elements required of a welder, including the ability to:

1. Set up welding machine
2. Read a welding procedure
3. Welding a coupon in accordance with the relevant acceptance criteria

Consistent with most welder qualification standards, it not only qualifies the welder for the conditions of test but also for all other conditions considered easier to weld in accordance with the standard. The standard also assumes that the welder has suitable industrial experience or training with the relevant welding process.

Unlike welder qualification standards used in Australia, AS/NZS ISO 9606-1 is not specifically limited or linked to any specific industry sector. As such, it provides for a broad range of application without complexity or compromising quality. This affords fabricators and welders alike the opportunity to work across industry sectors without the costs associated with requalifying welders welding on similar joints and materials.

Welder qualifications are valid for two or three years, and are transportable across worksites and employers, avoiding the need to requalify welders where there is evidence of maintenance of qualification.

In addition, a six-monthly confirmation process is used to verify welder qualifications to ensure maintenance of welder skills, without the need for additional testing. The confirmation process is similar to that required for welders qualified to other standards, including AS/NZS 1554.1.

ISO 9606 1 does not replace either AS/NZS 1554 or AS/NZS 1796 Certification of welders and welding supervisors. Rather, ISO 9606 1 is complementary to these Standards, working well alongside both.

THE BENEFITS OF AS/NZS ISO 9606-1

The qualifying of welders to AS/NZS ISO 9606-1 offers a wide range of benefits for welders, fabricators and specifiers alike, particularly reduced compliance and welder qualification costs

- Welder qualifications are not specific to any one industry (or application standard)
- Qualifications are valid for two or three years and transportable across worksites and employers, so welders don't need to be requalified (if skills are maintained)
- Options available for welders to simultaneously qualify for both butt welds and fillet welds
- Multiple test assessment methods available to suit project budgets and mitigate risk, from ultrasonic radiographic examination to simple destructive tests
- Utilises a six monthly confirmation process to ensure maintenance of welder skills without the need for additional testing
- Option available for alternative assessment criteria where required
- Test system is based on welding to qualified weld procedures (option available to qualify welder and procedure at the same time)
- Welder qualifications are based on the welding consumable used in the test, so that welders can be qualified using cheaper carbon steels in lieu of alloy parent steels
- Limited non-transferrable qualification option for fabricators with a weld quality program that has been verified as compliant with AS/NZS ISO 3834 to qualify their welders for an indefinite period provided that other specific criteria are met

Why Weld Australia Opted for ISO 9606-1

ISO 9606-1 was adopted by Australia and New Zealand as AS/NZS ISO 9606-1 in December 2017.

ISO 9606-1 is the only Standard in the world that is accepted in both Europe and America, and is the minimum requirement for working on rolling stock, defence, infrastructure and pressure equipment projects.

In fact, ISO 9606-1 is required under several international Standards, including EN 15085 *Railway applications—Welding of railway vehicles and components*, and DIN 2303 *Welding and allied processes—Quality requirements for production and maintenance companies for military products*.

With major government spending now underway on defence and transport projects and with the major contractors being European based and utilising ISO welding standards, Australia agreed to adopt the harmonised welder qualification standard ISO 9606-1 to provide a pathway for our fabricators and welders access to future fabrication work in these industries.

Recognition of AS/NZS ISO 9606-1

Whilst welder qualifications compliant with ISO 9606-1 have been recognised by AS/NZS 1554.1 since 2004, ISO 9606-1 was drafted to provide for the qualification of welders across a wide range of industries including both pressure equipment and non-pressure (such as structural, bridge, defence and so on) applications.

Having a broad application, welder qualifications compliant with ISO 9606-1 are currently recognised and referenced within a wide range of Australian standards and codes, including:

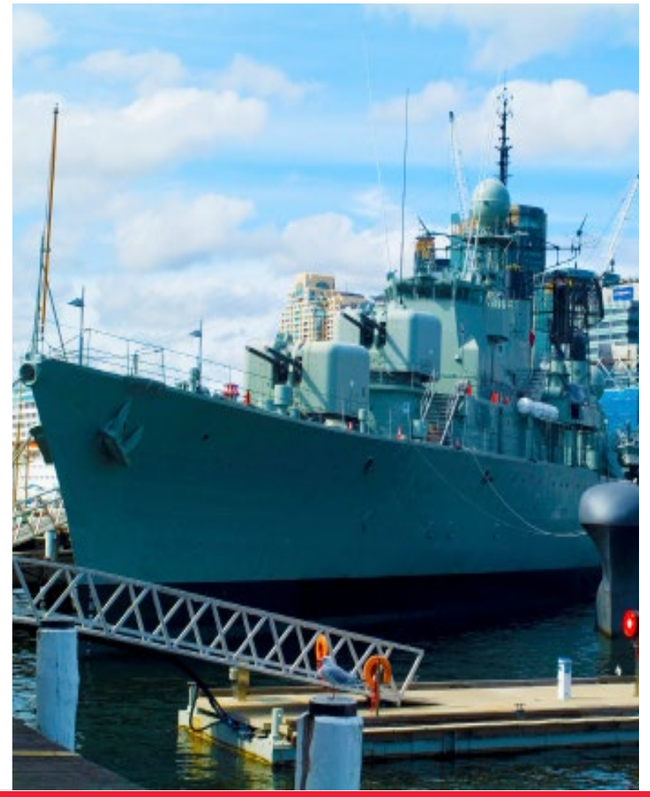
- ASME IX ASME *Boiler and pressure vessel code*
- AS/NZS 1554 *Structural steel welding* (all parts)
- AS 1988.1 *Welding of ferrous castings Part 1: Steel castings*
- AS/NZS 3992 *Pressure equipment—Welding and brazing qualification*
- AS/NZS 5100.6 *Bridge design Part 6: Steel and composite construction*
- AS/NZS 5131 *Structural steelwork—Fabrication and erection*
- AS/NZS ISO 3834 *Quality requirements for fusion welding of metallic materials* (all parts)

Initially adopted in Europe as EN ISO 9606-1 in 2013, ISO 9606-1 has now been adopted by the Asian Welding Federation (member countries include Japan and China), and in Australia and New Zealand as AS/NZS ISO 9606-1:2017.









Comparison with Other Standards

AS/NZS ISO 9606-1 uses methodologies similar to many other standards, including:

- Test methods are similar to those of AS/NZS 2980, AS/NZS 3992, ASME IX
- Welder is tested to a qualified weld procedure, with an option available to utilise a draft WPS when being qualified at the same time
- The standard specifies a range of essential variables enabling welders to extend their qualification limits to conditions considered easier to weld
- The optional job knowledge requirement specified within the standard is generally consistent with the theory component of the AS 1796 welder's theory syllabus. Additional testing of welders with AS 1796 certifications is therefore generally not required to establish compliance

AS/NZS ISO 9606-1 uses ISO terminology throughout. However, terms and abbreviations are defined within the standard including the welding process numbering system common to ISO standards. Qualifications gained are typically valid for two years or longer, and validity may be extended provided that specified criteria is met.

The Future

ISO 9606-1 is gaining importance throughout the world, and in Australasia as AS/NZS ISO 9606-1. As anticipated, the major players in the defence, transport and pressure equipment industries are now referencing AS/NZS ISO 9606-1 as the basis for welder qualifications.

To assist with its implementation, Weld Australia in conjunction with the Victorian Government, has developed national training modules to enable welders to be trained by registered training organisations throughout Australia to AS/NZS ISO 9606-1. Specifically:

- 22461VIC - Course in Fusion Welding to ISO 9606 for Transition Workers
- 22462VIC - Course in Fusion Welding to ISO 9606 for Experienced Welders

While AS/NZS 2980 has also been revised to align with the current ISO 9606-1 requirements, in the future it will be superseded by AS/NZS ISO 9606-1. It is anticipated that with Australia's active participation in the development of ISO 9606-1, the opportunity is available for the standard to be amended to better align with Australian industry requirements.

Weld Australia

WELD AUSTRALIA'S VALUE PROPOSITION

Weld Australia is the peak industry body, representing the welding profession in Australia.

Our members include individuals and companies across every facet of Australian industry, making a significant contribution to the economy.

Weld Australia is the Australian representative member of the International Institute of Welding (IIW).

Our Mission is to be the leader in facilitating growth of world class welding in Australia.

Our Vision is to enable industry to access leading edge technologies through technology transfer, education and certification opportunities.

DELIVERING VALUE TO MEMBERS

Network
We provide a network for the exchange of ideas, sharing of resources and creation of meaningful connections.

Technology Transfer
We facilitate technology transfer from research institutions and overseas markets.

Learning & Development
We deliver pathways for learning, to expand your career and boost your earning potential.

Engineering Solutions
Our experts deliver specialist technical solutions for welding and materials related issues.

Collective Voice
We are the voice of industry, promoting and advocating for welding and welders to decision makers.

Certification
We are the IIW Authorised Nominated Body, making us the premier welding certification body in Australia.

STAY CONNECTED

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