

Japan Reinforcing Bar Joints Institute



The Role of Japan Reinforcing Bar Joints Institute (JRJI)

In Japan, the majority of major structures constructed with private capital including social infrastructures are made of reinforced concrete. As the performance of reinforcing bar joints (rebar joints) that support these structures is closely connected with the safety of the structures, the quality of construction of rebar joints is very important in construction work.

In order to ensure the quality of pressure-welded joints, welded joints, and mechanical joints, JRJI will conduct research and studies on technologies related to rebar joints, promote the progress and dissemination of the technologies, and contribute to the improvement and rationalization of Japanese construction technologies, thereby contributing to society.

Main Businesses

In order to ensure the quality of all rebar joints, JRJI, as a public interest service, positions the following six businesses as the pillars of its major businesses: research and studies on rebar joint technologies, formulation of criteria/standards and specification sheets, promotion of dissemination and training of technicians, and certification of qualified personnel, as well as certification of companies and equipment technologies and the issuance of publications.

- (1) Research and studies
- (2) Formulation of criteria/standards and specification sheets
- (3) Issuance of publications
- (4) Promotion of dissemination and training of technicians
- (5) Japan Reinforcing Bar Joints Institute Certification of companies and equipment technologies
- (6) Certification of qualified personnel

Types of rebar joints

So far, many excellent methods of constructing rebar joints have been developed in Japan. These methods can be roughly divided into the following types: Gas pressure welded joints, welded joints, and mechanical joints.

【Gas pressure welded joints】

Gas pressure welded joints are constructed by a method in which the end faces of the rebars to be bonded are brought together and joined by forming a metallic bond between the atoms of the rebars by applying heat and pressure to the rebars without melting them.



【Welded joints】

Welded joints are constructed by a method in which a weld wire is placed in the space between the ends of rebars that have been brought together, and the rebars are joined by generating an arc and welding the deposit metal and the ends of the rebars.



【Mechanical joints】

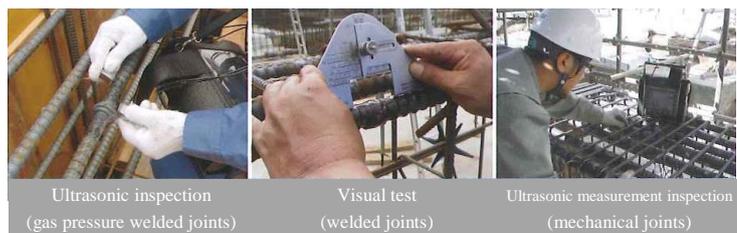
Mechanical joints are formed by mechanically joining rebars using joint parts such as sleeves and couplers.



Inspection of quality of rebar joints

The performance of structures depends on the quality of the construction of rebar joints. The quality of construction of rebar joints is confirmed by visual test for workmanship, checking the presence of internal flaws by ultrasonic inspection, and verifying the appropriateness of the inserted length by ultrasonic measurement inspections.

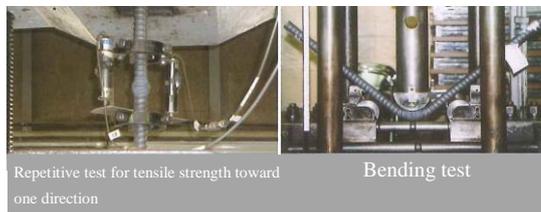
- Ultrasonic inspection
- Ultrasonic measurement inspection
- Visual test



Research and studies

Always aiming at maintaining and improving the quality reliability of rebar joints, JRJI conducts research and studies on development of new technologies related to joint techniques, inspection techniques, etc. JRJI also conducts annual statistical surveys on trends in rebar joints.

- Research on rebar joints
- Research on inspection technologies
- Statistical survey of rebar joints
- Initiatives that give consideration to the environment



Formulation of criteria/standards and specification sheets

In order to achieve leveling of rebar joint construction work, JRJI has established the “standard specification sheet for rebar joint construction work” (gas pressure welded joints construction work, welded joints construction work, and mechanical joints construction work). In addition to formulating, as necessary, criteria/standards based on new technology and knowledge acquired through research and studies, JRJI has made revisions to the standard specification sheet every 4-5 years, incorporating these results.

- Formulation of criteria/standards
- Formulation of standard specification sheets for rebar joint construction work
- Preparation of standard work procedure instructions/inspection procedure instructions
- Proposal for adopting JIS



Promotion of dissemination and training of engineers

Research and studies presentation meetings are held every year in Tokyo and Osaka to publicize the results of research and studies. When new criteria/standards and standard specification sheets are established or revised, workshops for the general public are held nationwide to promote the dissemination of these criteria/standards and standard specification sheets.

Meanwhile, efforts are made to maintain and improve technology and skills by training professional engineers and technicians through workshops on specialized technology for various types of joints directed toward engineers and qualified skilled personnel.

< Enlightenment of the general public >

- Research and studies presentation
- Rebar joints workshop

< Training of engineers >

- Joint management engineer workshop
- Gas pressure welding technology workshop
- Mechanical joint technology workshop
- Rebar joints inspection technology workshop
- Hot trimming inspection technology workshops

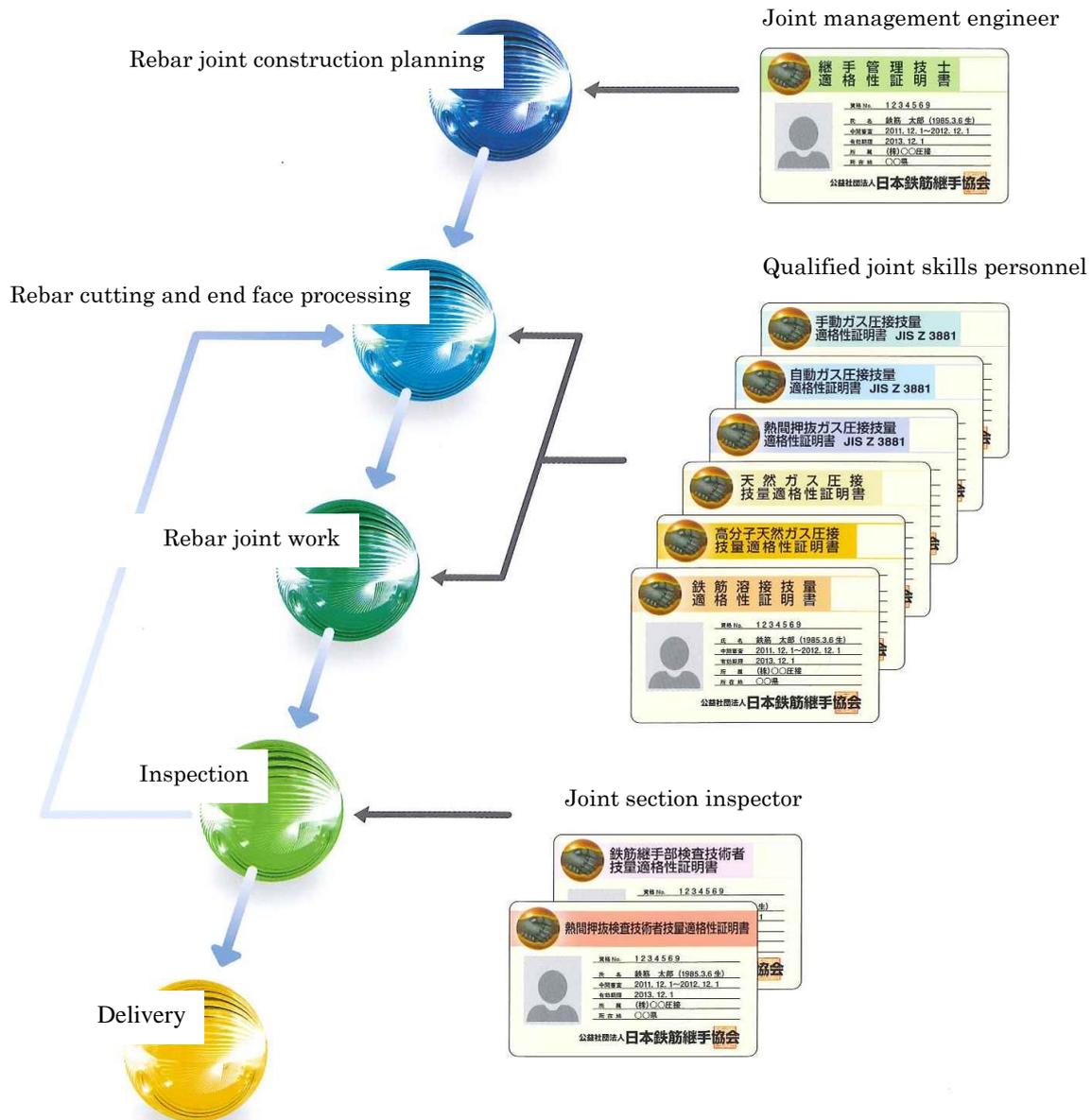


Certification of qualified personnel

In standard specification sheets, certain qualified personnel are positioned for each work process from the planning of joint work to delivery in order to maintain the quality of rebar joints. JRJI administers the certification of joint management engineers who supervise joint works, qualified skilled personnel for various types of joints, and joint inspection engineers.

The certification of personnel administered by JRJI is subject to conformity evaluation by external audits in order to maintain fairness, effectiveness, and reliability based on JIS Q17024: 2004.

- Joint management engineer
- Qualified gas pressure welder
- Qualified rebar welder
- Qualified reinforced bar joint inspector
- Hot trimming inspector



Certification of companies, equipment technologies, etc.

In order to provide high quality rebar joints to the public, JRJI certifies companies that possess a construction system, quality control system, and quality control capability that are above a certain level as specialized work companies.

In addition, with impartiality as the first principle in order to ensure the reliability of tests, JRJI certifies companies as superior inspection companies by evaluating their inspection system, quality control system, and quality control capability. JRJI widely publicizes these certified companies and recommends hiring them in actual construction work.

【Company certification system】

- Certification of superior gas pressure welding companies
- Certification of superior rebar welding companies
- Certification of superior rebar joint section inspection companies
- Certification of superior welding shear reinforcement bar manufacturing companies
- Certification of Class-A joint gas pressure welding companies
- Certification of Class-A joint natural gas pressure welding companies
- Certification of Class-A joint welding companies
- Certification of registered rebar joint inspection companies



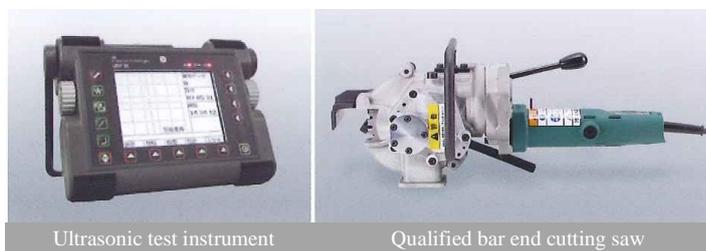
Certification of superior gas pressure welding companies

Certification of superior rebar joint section inspection companies

JRJI evaluates and certifies new equipment, technologies, etc. developed in connection with rebar joints, widely publicizes the certified equipment, technologies, etc., and recommends their use in actual construction work.

【Certification system for equipment technologies, etc.】

- Evaluation of performance of rebar joints
- Evaluation of performance of welding devices
- Evaluation of performance of testing equipment and measurement equipment



Ultrasonic test instrument

Qualified bar end cutting saw

Issuance of publications

To educate the general public on accurate knowledge and technologies concerning rebar joints, JRJI issues publications including various research and study reports, criteria/standards and standard specification sheets, etc.

Textbooks and workbooks distributed to workshop participants are available for purchases by people who were unable to participate in workshops so that they can study the material.

A history of JRJI

1963: Japan Pressure Welding Society (JPWS) established

1965: JPWS authorized as a corporation

1999: Articles of incorporation changed to be able to handle not only gas pressure welded joints but also other types of joints

2008: Name changed to Japan Reinforcing Bar Joints Institute (JRJI), and articles of incorporation partially changed

2010: JRJI certified as a public interest incorporated association

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