NEWS
GSI SLV
joined for welding
DVS

CE mark – Preconditions for issuing

Since 1996 those construction products on the market in Germany have had to avail of a "verification of compliance". This regulation has been a national matter with regard to the guidelines of the European "Construction Products Directive" according to which construction products must have a verification of compliance on the basis of to harmonised European standards. These standards were not available at the time of the introduction of the Building Rules List in 1996 thus requiring a proof on verification in the form of an ÜH, ÜHP or Ü-mark .

With the introduction of harmonised European standards the well-known verification of compliance (Ü-mark) will increasingly be replaced by the CE mark which will more and more refer to construction products for metal construction. Construction products for which no harmonised European standards have been available yet, have been listed on the Building Rules List A (Ü-mark). Construction products a harmonised European standard does exist for, are listed in Building Rules List B (CE mark). The following building products for metal construction have already been delivered with the CE mark:

1. Non-alloyed structural steels pursuant to DIN EN 10025-1
2. Hot finished hollow sections pursuant to DIN EN 10210-1
3. Cold formed hollow sections pursuant to DIN EN 10219-1
4. Filler metals such as DIN EN 440, DIN EN ISO 2560 pursuant to DIN EN 13489
5. High strength friction grip bolts pursuant to DIN EN 14399-1 (CE mark obligatory as from 09/2007)

These conditions for issuing the CE mark and the pertinent declaration on compliance have been described in the respective appendix ZA of the above mentioned standards. For these construction products the system 2+ for issuing the CE mark has to be applied.

But how will the manufacturer of a construction product obtain the CE mark?

The manufacturer is permitted to be awarded the CE mark in system 2+ not before it has been proven to the notified body that the initial type testing to the products has been carried out, i.e. at least the tests specified in annex "ZA" of the respective product standard (e.g. chemical analysis and mechanical-technological examinations). Furthermore, the manufacturer has to prove his availability of an operating factory production control, i.e. the FPC has to be carried out, documented and the results evaluated during production. Moreover, a continuous supervision, evaluation and verification of these factory production controls must be carried out.

One employee of the notified body will verify these measures with the manufacturer and summarize the result in a report which again will be internally evaluated by the notified body. If the applicant fulfils all of the demands, the factory production control will be certified by the notified body. The manufacturer will receive both, the report on supervision and the respective certificate and is permitted to issue the CE mark together with the respective technical information for his construction product from that time on. The supervision of the factory production control will be carried out steadily, i.e. at least once a year.

To this end, a contract on supervision will be concluded between the notified body and the manufacturer.

The SLV branches of the GSI mbH have been notified in Brussels for the above mentioned construction products and are therefore permitted to perform both the supervision and issuing of certifications of the plants. The first certifications of the factory production control for structural steels, filler metals as well as for hollow sections have been issued in the meantime. Hence, the companies are now permitted to award the CE mark for their products.

Contact persons concerning the CE certifications are the respective QA departments of the SLVs.

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GSI SLV
Duisburg

International Welding Inspection Course 2008
IWI-C (Comprehensive Level)
(in English language)
Welding Inspection Module
September 29 to October 17, 2008

International Welding Engineer
(in English language)
Part 1 Basics
(Distance Learning)
Before start of the classroom learning in Duisburg participants have to learn the theoretical fundamentals in Distance Learning in minimum 8 weeks

Start of Classroom Learning in Duisburg:
January 13, 2009
Part 2
Practical training in the workshop

Part 3 Main Course
(Blended Learning)
50% Distance Learning
50% Classroom Learning

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High-strength friction grip bolts and armatures up to M36 with CE mark as from 01.09.2007

High strength bolts and armatures will be delivered and applied having the CE mark as from 01.09.2007. All mayor German bolt manufacturers have obtained the respective certificates, among others through the certification of the factory production control by the SLV Hannover, branch of the GSI. The applicable European Standard is DIN EN 14399-1 ruling the CE mark up to M36.

Now, sizes M39 up to M64 are increasingly manufactured and applied (among others for wind turbines). For these sizes there is no harmonised European standard available.

Therefore, in Germany the Ü-mark regulation (procedure ÜZ) is still applicable for M39 to M64 within the scope of the Building Authorities. The basis for this is the DASt regulation 021 which is listed up in Building Rules List A, issue 1/2008 with the projected no. 4.8.71 as the applicable standard. This means that for those sizes you as the user must require the Ü-mark within the scope of the building authorities, i.e. you should order and use high strength friction grip bolts and armatures from those manufacturers only who have obtained the Ü-mark.

If you have further questions, please do not hesitate to contact the SLVs.

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Information concerning the ZTV ING, Part 9, Paragraph 1 – Traffic sign gantries –

Imminent changes corresponding to the state-of-the-art must be taken into account as early as during the call for tenders

Preliminary remark

The ZTV-ING was introduced in 2003 with its part 9, paragraph 1 superseding the ZTV-VZB valid up to then.

Due to the general development the ZTV-ING part 9, paragraph 1, traffic signs is being revised. Since the final revision cannot be concluded in the short run, the imminent changes will be made known according to the state-of-the-art to be taken into account with the call for tenders.

Modifications of the ZTV-ING part 9, paragraph 1 Traffic sign gantries

4 Materials:

For the supporting structures made of steel the steel quality must be chosen complying with the specifications of DIN 18800-7 corresponding to the loads exerted and the conditions of application. The minimum requirement for the material S235 is the steel grade JRG2 (DIN EN 10025, issue 3-1994) or JR (DIN EN 10025, issue 4-2005) material no. 1.0038 and for the material S355 steel grade J2G3 (DIN EN 10025, issue 4-2005) material no. 1.0577.

For pipes the respective materials according to DIN EN 10210 and 10219 are to be used. When choosing the steel quality, moreover guideline DASt 009 (2005) must be observed. For hot dip galvanized structures the composition of the zinc bath must be submitted. The following limit values must not be exceeded:

Tin (SN) <= 0.3 %;
Lead (PB) <= 0.9 %;
Bismuth (Bi) <= 0.1 %.

For the supporting structures made of aluminium the following materials are exclusively to be chosen pursuant to DIN EN 573-3:

EN AW – 6082T6 (EN AW-AlSiMgMn);
EN AW – 5083 H111 (EN AW-AlMg4.5 Mn0.7);
EN AW – 5086H24 (EN AW-AlMg4).

For mounted parts such as railings and ladders also EN AW – 6060 T66 (EN AW-AlMgSi) can be used. With supporting structures made of aluminium the material permitted to be used for the bearing plates of the pillars is only EN AW – 5083 H111 according to DIN EN 573-3.

Formation of the weld seams:

Weld seams must principally correspond to level B for steel according to DIN EN ISO 5817 and for aluminium according to DIN EN 30042. If weld seams can technically not be carried out within level B, the load exerted must be limited to 75 % of the admissible values by means of classification to level C. The classification is subject to approval by the AG and must be marked in the execution plans. In general, hot dipped bolted connections of grade 5.6 according to DIN 267-3 are to be used.

In the deflection resistant corner joints bar/pillar and at joints within the bar and pillar, respectively fully pre-stressed bolted connections of quality 10.9 according to DIN 267-3 are to be used. At pipe clamps and fixing elements also bolted connections made of stainless steel A2 or A4 according to DIN EN ISO 3506 are possible.

6 Construction and equipment:

Fillet welds of mounted parts such as compartments are to be welded circumferentially. Single-sided fillet seams are not permitted. With accessibility from one side only HY (maximum t/5 non-welded) and HV seams, respectively are to be carried out.

Welded-in compartments including assembly compartments are to be constructed according to the principles of a reliable operation avoiding stress peaks.

6.4 Joints between bar and pillar:

With the deflection resistant joint bar-pillar the bar must be all over supported. In order to obtain a complete support, residual unevenness which must not exceed 2 mm between the closing plates is to be filled with the appropriate trowel metal (e.g. a material filled with stainless steel).

6.5 Fixing elements:

All bolts are to be detachably secured against self release either by means of fixing by a locknut (DIN 980, 982, 985, 7967) or by liquid glues.

Further information:

Further information concerning the imminent modifications is included in the collection of traffic sheets (Verkehrsblattsammlung) No. S1065, issue 07.11.2006.

Together with the revision of paragraph 1 – Traffic Sign Gantries – the pertinent guidelines in relation to the set up with respect to loads are being revised.

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DIN EN ISO 3843 - Modifications to DIN EN 729

It is like everywhere - there is no improvement without changes. On the field of quality assurance, too the known standard DIN EN 729 was superseded in 2006 by DIN EN ISO 3834.

Every user of DIN EN 729 still is aware of the difficulties when the standard became known. In the mean time it has been incorporated into every welding product standard as an essential specification. Also in the areas not ruled by legislation, the quality requirements with respect to welding increasingly gain more importance as a constituent to contracts. The advertising effect for companies who have proven their welding skills by a certificate is of ever increasing importance.

And now a revision of the standard will be published with new numbering. An improvement?

The general introduction of DIN EN ISO 3834 has taken into account the general demand of the international markets to have comparable conditions worldwide when manufacturing and entering the market of products.

The committees for standardization have considered and incorporated experience of applying the European standard. DIN EN ISO 3834 now consists of 6 parts. Besides of parts 1 to 4 describing the criteria for the selection and type of quality requirements, in the part 5 relation to the applied standards is made. Here, the ISO standards and documents have been listed up that are required for fulfilling the requirements to quality in parts 2 - 4. When the application standards are changed, only this part 5 is to be adapted in the future while the rest of the standard can remain unchanged. A further advantage is that all application standards have been clearly summarized. Finally, part 6 is a guide for the introduction and application of the standard.

Having the new standard there is the possibility to implement a quality management system on the basis of DIN EN ISO 3834 which fulfils the approach of DIN EN ISO 9001 using the processes to be documented. The elements of the verification of contracts and constructions are newly defined as a verification of documents and technical inspection.

Here, it must also be stated that in relation to the duties and responsibilities of the welding coordinators, the standards have been coordinated by replacing DIN EN 719 by DIN EN ISO 14731.

In order to offer the welding plants the opportunity of proving the quality requirements concerning welding according to the relevant part of Din EN ISO 3834, the plant can be certified once having passed an audit. To this end, it is favourable to have this combined with an inspection of the plant within the scope of issuing manufacturers´ qualifications according to the various partly legally required guidelines.

The DVS ZERT, accredited by the TGA (responsible bodies for accreditations in Germany) and the IIW (International Institute of Welding) is as your disposal with ist cooperative institutes, the SLVs. The branches of the GSI are pleased to inform you.

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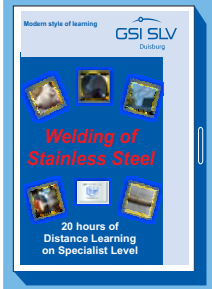
GSI SLV
Duisburg

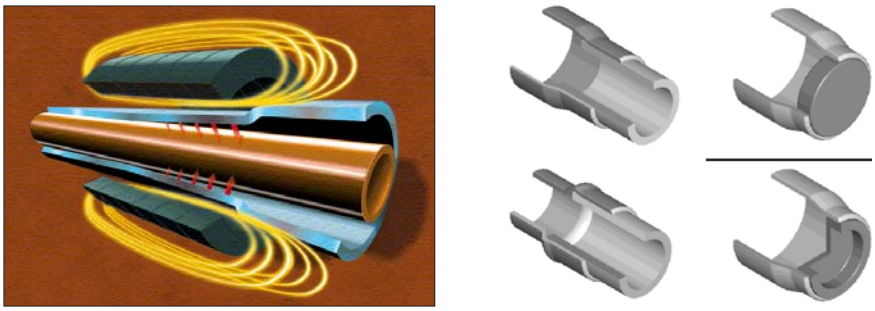


"Welding of Stainless Steel" - A multi-media self-study CD especially aimed at welding coordinators, welders, masters and craftsmen who want to know more about this type of material.

Further information you will find under:

www.slv-duisburg.de

Magnetic pulse welding - new specialised welding process for industrial users



Principle of magnetic pulse welding and typical joining geometries/PULSAR

Magnetic pulse welding is a cold joining process, favourably used for thin walled overlapping joints such as casing parts, tube connections etc. The physical principle can be compared to explosion welding. During magnetic pulse welding the semi-finished components become extremely accelerated by the magnetic fields. The joint is formed by means of adhesion and diffusion. Compared to fusion welding, also different metallic materials such as aluminium to steel or copper to brass can be welded. Besides of welding, the magnetic pulse welding process can also be applied for deforming and separating (punching).

In cooperation with the company Pulsar, a 25 kW magnetic pulse welding plant will be built at the SLV München. Apart from the execution of public research projects with its focus on application basics to be generalized, particularly industrial services for the development of customer specific applications are offered.

The SLV München as a competence centre within the GSI is organizing a research network for magnetic pulse welding, in order to define the scope of application conditions for this new joining process. We have informed about the basic principles of the process as well as about the aims of development in a workshop at the SLV München on 4.12.2007. After the workshop the objectives of the research network have been defined. Interested companies please address to Dr. Cramer.

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New non-destructive testing variation for corrosion protected components for steel construction

Numerous structures of steel superstructures have been protected against corrosion by means of a coating. The advantage is that service life, maintenance cycles and, if required functionality of the structures can be considerably increased. These coatings consisting of organic or metallic materials can lead to disadvantages, however, if cracks occur in the component due to operation which are concealed by the coat. During routine inspections there will be the risk that the damages to the building components won´t be recognized in due time. The non-destructive testing methods commonly used give limited evidence only, at least starting from a certain coating thickness. Consequently, an early and comprehensive proof on cracks under coatings starting from a thickness of 100 µm in many cases is not possible using conventional methods.
Therefore, in order to inspect the quality of the components and therefore guarantee stability the corrosion protection layer must often be removed before the common non-destructive testing methods can be applied. The resulting high costs, time expenditure required and also considerable environmental impact are some of the reasons for the fact that such types of inspections are ordered upon extensive consideration of various points. Experience of the last months and years has shown, however that the inspection of large structures is absolutely necessary. This is not only valid for structures made of steel but also of wood.
The eddy current technology (ET) is used quite rarely in welding engineering, since it requires smooth surfaces, if possible, using the standard methods. One mayor advantage of this process, however is the possibility of proving also imperfections under coatings up to a relatively large penetration depth.
Some years ago within the scope of the research project by the German Authority for Roads, the eddy current technology was further developed at the SLV München which can reproducibly prove cracks open towards the top under thicker coatings, too. Surface roughness does not have a negative effect with these processes any more. Thus, grinding of the welded seams to be tested prior to testing is not necessary any more. Corrosion protection therefore is completely maintained. The capability to be tested has been proven in practice up to approx. 2 mm coating thickness with organic coatings and up to approx. 400 µm with galvanized coatings.
A commercially available, small eddy current testing device, appropriate for the use at construction sites, is used, but a testing probe adapted to the special task is used permitting measurements across the whole seam area. Through appropriate calibration bodies as well as adapted testing software, cracks on coated steel structure components can be distinctively and reproducibly proven. The process enables the necessary separation of indications of damages and spurious indications as well as the common signal noising. In doing so, testing speeds can be obtained that are considerably higher than those obtained during magnetic particle testing. The surface to be tested need not be particularly prepared and may be rough and irregular to a common extent. Closed defective spots (pores), however are not reliably proven, even if they are close to the surface. By an experienced tester trained at this modified testing method the process, however can be reliably carried out under conditions of a construction site. Testing in constrained positions (e.g. overhead working or back sides of frames) is also possible which in the mean time has been proven in practice for the testing task described. Using this method, inspections to bridges across motorways, football stadiums, parking houses, high bay racking, roof constructions made of framework among others have been successfully carried out to the advantage and satisfaction of the customer. Used on site, the low weight of the device and the fast capability to recognize damages has proven extremely successful. Moreover, the application of testing media such as with the magnetic particle testing is not required.
The modified eddy current testing method developed together with national and European partners offers a testing technology qualified to be used in practice which does not only enable to economically perform complex non-destructive testing but also to reduce costs prior and subsequent to testing.

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New standard for military products

The following standard was first published in the issue of February 2007: “DIN 2303 – Welding and related processes, Quality requirements for production and maintenance companies for military products”.
This standard is the basis for future qualifications of manufacturers replacing the guidelines DVS 2718-1 to – 5 and DVS 2719.
In April 2007 an exchange of experience of the notified bodies has been carried out for this field of application. In this connection, details for application, interpretation, nomenclature as well as for the design of the forms are to be discussed and determined. After this exchange of experience the guidelines DVS 2718-1 to – 5 and DVS 2719 will be withdrawn. After that only will standard 2303 be applied.
Existing certificates according to guideline DVS 2718 will not be affected by the determinations of standard 2303 until their expiry of validity.

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Bonding in rail vehicle construction: New requirements on manufacturing companies

TC Kleben has been accredited notified body "Bonding"

Without doubt, in a variety of safety relevant areas of rail vehicles as well as in all other vehicle branches the bonding technology is applied today. Beside of apparent bonded joints such as bonded front masks and direct vitrification also non-spectacular bondings such as bonding of floor coatings or dividing walls may lead to mayor damage in case of failure.

This development towards an increasingly applied bonding technology has been recognized by the German Railway Authority (Eisenbahnbundesamt – EBA) who has initiated the standardization reflecting the state-of-the-art.

Hence, the standard DIN 6701 "Bonding in Rail Vehicle Construction" is being published complementing standard DIN 6700 "Welding in Rail Vehicle Construction" where the demands on the manufacturers of rail vehicles or their components have been specified. By this, the manufacturing companies avail of a publication sensitizing to the handling of components from their construction until their manufacture thus safeguarding the quality of the bonded parts.

Beside of the demands on organisation and equipment, those on personnel are referred to in the standard, too. Correspondingly, the user must avail of personnel skilled in bonding technology and he must comply with the grade of quality assurance.

Safety relevant bonding: Direct glass fitting

The German Railway Authority will now publish administrative provisions according to which the obligation of the railway manufacturer and operators to implement the specifications of the standard will be identified. Both groups will further feel obliged to do so because of their product liability and because of the customers who will demand the implementation of this standard from their suppliers.

In the future, the manufacturers of rail vehicles and their components, respectively - as it is the case in welding engineering – must be subjected to a supervision of the quality. This means that the notified body, accredited by the German Railway Authority, will have to carry out an audit of the company together with expert discussions where the demands on the company concerning the standard will be proven. Upon successful verification the notified body then will issue a certificate concerning the compliance with the standard. Accrediting is bound to the location of the company. Such verification will be necessary again after a period of three years.

In the mean time, the Technologie Centrum Kleben has been accredited by the German Railway Authority as a notified body. Within the GSI, which covers the whole range of joining technology, you will therefore find a competent partner in case of questions concerning the joining technology "bonding".

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NAKS – Centre for attestation at the SLV Mecklenburg-Vorpommern GmbH - Certification for the Russian market

" NAKS (Nazionalnaja Assoziaija Kontol i Svarka)" is the inspection organisation instructed by the superior Russian supervisory board "ROSTECHNADSOR" for technical matters on the field of "welding". To this end, NAKS introduced a system in 2003 for the "attestation of welded production" which since mid 2005 has also been effective on an international scale. This system has been further developed since its introduction and is planned to adapt to the habits of the European and global markets.

Within this system, obligatory attestations for welding materials (SM), welding equipment (SO), welding technologies (ST) and welding personnel (SP) have been specified, in order to prove safeness during utilization thereof in the so called "areas of technical hazards" (comparable to our fields complying with the rules of the building authorities) pursuant to the Russian guidelines.

Part of these "areas of technical hazards" are: Equipment for lifting and transportation, equipment in pressurized vessel construction, equipment for the gas industry, petroleum and gas extraction plants, the iron industry, equipment of the chemical, petroleo-chemical, petroleum processing, potentially explosive and combustible industries, mining plants and plants for the transportation of hazardous goods.

NAKS certificates are required in addition to the GOSTR-R-certificate certifying safeness in case of importing goods to Russia.

In order to attest all four possible cases of application – SM, SO, ST and SP, the type and scope of certain examinations liable to pay costs are prescribed that will be agreed with the potential customer (manufacturer, dealer, final user) as well as they are to be recorded by a special testing programme.

NAKS has more than 70 attestations in Russia with different scopes of admission.

Since May 2005 the centre for attestation at the SLV Mecklenburg-Vorpommern GmbH has been offering the execution of such attestations for the European area. The customers are extensively consulted by the center of attestation (AZ) concerning the NAKS rules, often reaching far above the period of attestation. The AZ also cares for the translations into Russian since all documents are to be handed in in Russian language. The examinations required for attestation are – as far as possible – carried out on the site of the customer accompanied by a representative of the Rostock AZ and a least one representative of NAKS-RUS.

In the case of welding material this includes for example a walk through the production facilities. Beside of the proof of the welding behaviour of the electrode, both, specimens of the weld metal and welded joints corresponding to the future intended purpose are to be produced, the latter being not common for German exporting companies. Another deviance for example is the test on strength of the electrode coatings – drop test transverse instead of vertical. The destructive material testing methods usually are carried out in the testing laboratory approved by the NAKS at the SLV in Rostock. Furthermore, filler metals of the same type of production coming from one production site should to be named as early as with the application.

Also in the case of welding equipment their welding behaviour is to be proven. Welding current, voltage and speed, the static characteristic, wire feed, gas flow as well as aspects concerning safety are to be tested for comparison of the indications in the "equipment certificate" and in compliance with the Russian regulations.

Depending on the scope of attestation and testing, the committee of attestation will be present for a period of one up to four days.

Successful attestations are presented in the Internet by the NAKS headquarters in Moscow (www.naks.ru- only Russian) so that every potential customer in the country refer to certified SM, SO, ST or SP as early as from the beginning.

Up to now NAKS has carried out approx. 400,000 individual attestations in the stated four groups, the mayor part with respect to welders examinations, followed by about 40,000 SO, 5,800 Stand 1,100 SM.

Inquiries by German companies first were carried out by the manufacturers of filler metals, now the demand for attestations of welding equipment is increasing.

A total of three different certificates could be awarded to European customers by the centre for attestation of the SLV M-V in October last year, the Linde AG/Linde Engineering Division, Tacherting, Germany, for "Personnel and Technology" , the SAFRA S.p.A. Travagliato (Italy), for the "filler metal" and in January 2007 to Böhler Schweißtechnik Austria GmbH, Kapfenberg, Austria for "filler metal".

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