Information for the certification of weld shops in rail vehicle construction according to DIN EN 15085-2

DIN 6700-2	DIN EN 15085-2
Notified body (competent authority – Railway Authority) Inspects and issues certificate	**If required** **Manufacturer certification body** **(National safety authority)** Inspects and issues certificate
Parts classes (BTK) **Depending on safety relevance of components and parts**	**Certification level** (CL) ***dependent on weld performance class*** *(CP)* **or on defined components and parts** **(weld performance class will be determined by structural requirements according to DIN EN 15085-3 !!)**
C1 ⇨ Vehicles and components with high safety relevance, new build, conversion and repair, bogies, underframe and vehicle body	**CL 1** ⇨ Rail vehicles or parts with welded joints classified in ***weld performance classes CP A to CP D*** Levels CL 2 to CL 4 included *Required for:* bogies, body shell components (underframe, structures), buffers and draw gear, wheel set components (wheel set mountings, axle boxes, spring supports), bake equipment, external fuel tanks, supporting frames for heavy components (pantographs, traction units), welded components for drag transmission from bogie to vehicle, vibration dampers and their link between bogie and vehicle or between vehicles, finishing welding of castings within components indicated above
C2 ⇨ Vehicle **parts** with high safety relevance finishing welding repair of vehicles, components and parts classes C1 / C2 (large repair shops ⇨ C1) **Steps and hand rails for waggons (2005)**	
C3 ⇨ Vehicle **parts** with medium safety relevance Repair to parts of parts class C3 **Pressurised pipes for toilet systems (2005)**	**CL 2** ⇨ Components with welded joints of ***Weld performance class CP C2 to CP D*** CP C1 is possible, if inspected according to weld performance class CT 1; Level CL 4 is included for parts according to CL 2 or CL 3
C4 ⇨ Vehicle **parts** with low safety relevance Repair to parts of parts class C4	**CL 3** ⇨ Parts with welded joints classified according to *weld performance class CP D*
C5 ⇨ Welding manufacturer which: - designs - purchases and assembles - purchases and sells components and parts to be welded.	**CL 4** ⇨ Welding manufacturer, which: - designs - purchases and assembles - purchases and sells
Certificate required for: C1, C2, C3, C5 Not required for parts class C4	**Certificate required for: CL 1, CL 2, CL 4** Not required for CL 3

Quality requirements to welding manufacturer Parts class C1 to C3: according to DIN EN ISO 3834-3 Parts class C4: according to DIN EN ISO 3834-4 Parts class C5: according to DIN EN ISO 3834-3 (if QMS according to DIN EN ISO 9001 required: DIN EN ISO 3834-2)	**Quality requirements to welding manufacturer** CL 1: according to DIN EN ISO 3834-2 CL 2: according to DIN EN ISO 3834-3 CL 3: according to DIN EN ISO 3834-4 CL 4: according to DIN EN ISO 3834-3
Welding coordinators **Parts class C1** ⇨ responsible welding coordinator, level 1 ⇨ deputy , level 1 (not for smaller welding shop) ⇨ in addition to each welding shop, level 3 or 4 **Parts class C2** ⇨ responsible welding coordinator, level 1 ⇨ deputy, level 2 or 3 ⇨ in addition per welding shop, level 3 or 4 (with several manufacturing shops) **Parts class C3** ⇨responsible welding coordinator, level 2 or 3 ⇨ deputy, level 4 **Parts class C4** ⇨ no requirements **Parts class C5** ⇨ for parts class C1 one welding coordinator for level 1 ⇨ for parts class C2 one welding coordinator, level 1 (construction only: DVS-welding designer ⇨ for parts class C3 one welding coordinator 2 or 3 (construction only: like parts class C2)	**Welding coordinators** **CL 1** ⇨ responsible , level A ⇨ deputy, level A (not for smaller welding shops) ⇨ further deputies, level B or C / with further welding shops further deputy, level C **CL 2** ⇨ responsible welding coordinator, level B or C ⇨ deputy, level C **CL 3** ⇨ No requirements **CL 4** ⇨ For CL 1: level A ⇨ For CL 2: level B or C See annex B Tasks and areas of competence of welding coordinator
Involvement in organization Also see DVS-leaflet 1617 Description of the job: DIN EN ISO 14731 ⇨ tasks, responsibilities and areas of competence ⇨ rules for the areas of competence ⇨ when must a responsible welding coordinator be present ⇨ measures in case of absence of a responsible welding coordinator ⇨ authority to issue instructions	**Welding coordination organization** Description of the job: DIN EN ISO 14731 ⇨ Tasks, responsibilities and areas of competence ⇨ Rules for the areas of competence ⇨ when must a responsible welding coordinator be present ⇨ measures in case of absence of a responsible welding coordinator ⇨ Authority to issue instructions ⇨ Decision making independent of manufacturing pressures ⇨ CL 1: Owners, managing directors, works manager, manufacturing manager

⇨ decision making independent of manufacturing pressures ⇨ Parts class C1: Owners, managing directors, works manager, manufacturing manager are not approved as welding coordinator, deputy may be approved	are not admitted as welding coordinator no approval possible, (Yes, in case of smaller shops, if welding coordinator has level A and deputy has level C) Deputy may be approved
External welding coordinator (in special cases) see also **DVS-guideline 1619** and A-Z-collection of KoA ⇨ for parts classes C2, C3 and C5 possible ⇨ also valid for welding coordinators who are employed by another part of the same manufacturer (holding, head office, administration) ⇨ work contract and working time ruled ⇨ description of the job (when must a welding coordinator be present) ⇨ running of a work book ⇨ maintenance: Welding coordinator of level 1 of a maintenance works can be approved for 2 further smaller works of the same owner as the responsible welding coordinator (for parts class C2)	**Subcontracted welding coordinator** (special cases) Welding coordinators who are not employed Only valid for responsible welding coordinator ⇨ for CL 1 to CL 4 possible ⇨ only one subcontract per manufacturing plant deputy must be employed with manufacturer ⇨ work contract and working time ruled, running of a work book / record ⇨ if subcontracted welding coordinator is to be active in more than two plants, approval of customer is required, for CL 4 exceptions in accordance with manufacturer certification body ⇨ also valid for welding coordinator who is employed with another plant than that of the manufacturer (holding, head office, administration)
Welders, operators, setters ⇨ DIN EN 287-1, DIN EN ISO 9606-2, DIN EN ISO 9606-3, DIN EN 1418 ⇨ per welding process, material group (and dimension) min. 2 according to the applicable standards ⇨ for fillet weld separated evidence required (butt weld does not include fillet weld) ⇨ Aluminium-material groups 21 to 23: with TIG and MIG principally radiography of the butt weld; for fillet weld additional macro-section ⇨ Welding coordinator level 1 is allowed to take examinations (if approved by the notified body)	**Welders, operators, setters** ⇨ DIN EN 287-1, DIN EN ISO 9606-2, DIN EN ISO 9606-3, DIN EN 1418 ⇨ for all welding processes, types of material, types of seams and welding positions in manufacture ⇨ for fillet weld separated evidence required (butt weld does not include fillet weld) ⇨ responsible Welding coordinator level 1 is allowed to take examinations (if approved by the notified body) **Minimum number not stated!!**
Inspection personnel ⇨ quality inspections within welding manufacture: Inspection personnel must be instructed by welding coordinator ⇨ if required: ndt (VT, PT, MT, ET, UT, RT) according to DIN EN 473	**Inspection personnel** ⇨ quality inspections within welding manufacture: Inspection personnel must be instructed by welding coordinator e.g. for visual testing for external evaluation of the welds ⇨ if required: PT, MT, ET, UT, RT according to DIN EN 473 with instruction by welding coordinator, Inspector with level 1 / inspection coordinator with level 2;

inspectors with level 1 / inspection coordinator with level 2; subcontracted inspection personnel possible ⇨**All inspections of the welded joints are to be carried out and evaluated under the responsibility of the responsible welding coordinator !!**	Subcontracted inspection personnel possible ⇨ **Inspections of the welded joints by the responsible welding coordinator ! or by IWIP or EWE, I level 1 or inspection personnel according to EN 473, level 3**
Welding Procedure Specifications (WPS) ⇨ for parts class C1 to C3 required for parts class C4 only if required by the customer	**Welding Procedure Specifications (WPS)** ⇨for welded joints of the weld performance class CP A to CP C3 required with CP D only if required by the customer
Evidence of the WPS: ⇨ manual / partly automated processes in materials groups 1.1, 1.2, 8, 9, 21-26 according to DIN EN ISO 15614-1 and -2 or DIN EN ISO 15611 or DIN EN ISO 15613; repair according to DIN EN ISO 15613 directly before start of production ⇨ fully automated processes or material groups 1.3-7 and 31-36 according to DIN EN ISO 15614-1 and -2 ⇨ Approval of the WPS using **WPQR** by: Inspection report of an inspection board (not necessarily the notified body according to DIN 6700) or the approved welding coordinator, level 1 if the shop has an accredited testing laboratory	**Evidence of the WPS:** ⇨ CL 1 / CL 2: Inspection report **WPQR** required according to EN ISO 15610, EN ISO 15611, EN ISO 15612, EN ISO 15613, EN ISO 15614, EN ISO 14555, EN ISO 15620 (for CP D only, if required by the customer) ⇨ CL 3: only, if required by the customer **Details see EN 15085-4, 4.1.4** See annex C (DIN EN 15085-2)
Supplementary area of validity of the WPS: ⇨ Materials groups see A-Z collection ⇨ Test piece thickness t ≤ 3 mm: manufacturing range 1.0 mm to 2t is valid ⇨ Fillet weld thickness of the work piece a<10 mm: manufacturing range 0.5a to 2a is valid ⇨ Fillet weld: Test piece for t≥ 3 mm required see DIN 6700-2, annex A, D, E, F Lasting validity for EN 288ff	No supplementary fields of validity have been described !! Lasting validity for EN 288ff
Technical equipment ⇨ Suitable equipment depending on the extent of the welding works: Storage of materials (dry) Suitable welding machines	**Technical requirements** ⇨ Suitable equipment according to DIN EN ISO 3834, in particular storage of materials (dry) Suitable tools and similar corresponding to the worked materials (aluminium, stainless steels) Welding equipment Rotating fixtures / clamping devices

Suitable tools and similar corresponding to the materials worked (aluminium, stainless steels) Welding equipment ⇨ for parts class C1 and C2: Rotating fixtures / clamping devices Working platforms / lifting devices Straightening equipment Special areas for working with aluminium and stainless steels	Working platforms / lifting devices Straightening equipment Special areas for working with aluminium and stainless steels
Approval of the weld shops **See also DVS-guideline 1619** ⇨ **Audit** ⇨ Evidence of WPS ⇨ Expert discussion (Welding coordinators) ⇨ Certificate of welding: **bound to the location of the weld shop and its welding coordinators**	**Certification procedure** ⇨ **Audit** ⇨ Evidence of WPS ⇨ Evidence of work specimens according to EN 15085-4 ⇨ Expert discussion (welding coordinators) ⇨ Welding quality assurance according to the applicable part of EN ISO 3834 ⇨ Issuing of a certificate **bound to the location of the weld shop and its welding coordinators**
Validity ⇨ **Maximum 3 years** **Surveillance** by notified body (**see DVS-guideline 1619**), Modifications are to be disclosed, Extension must be applied for in time ⇨ Withdrawal of the certificate	**Validity** ⇨ **Maximum 3 years** Valid only for the location the shop stated in the certificate, Annual **surveillance** by manufacturer certification body (it is permitted to take into account reports on internal audits, too) Modifications are to be disclosed, Extension must be applied for in time
Repair se DIN 27201-6	**Repair** ⇨ out of the certified shop for production of workability (transfer) ⇨ in case of warranty or maintenance of its own vehicles welding works are admissible under the same conditions regarding personnel, technical and qualitative requirements (the other shop need not be stated in the certificate) ⇨ certified body is permitted to carry out welding works in another workshop if the workshop is inspected in a verification procedure and the workshop is indicated in the certificate
Verification of conformity ⇨ according to order: to be declared by the body agreed upon ⇨ by the manufacturer:	**Verification of conformity** No requirements included in DIN EN 15085

Inspections and documentation according to the specified weld performance class according to DIN 6700-5 ⇨ by body agreed upon: Inspections and documentation according to specified weld performance class according to DIN 6700-5 and attestation of conformity or instead of inspections, the body agreed upon performs surveillance of the QMS (certificate will not be issued)	**But:** **DIN EN 15085-5,** **Chapter 9 Declaration of conformity** Manufacturer must submit certificate of compliance with the determined contract requirements; Guidelines for issuing: see EN ISO/IEC 17050-1 and -2 Certificate according to EN 10204 shall be agreed between customer and manufacturer

Evidence of welding procedure specifications – DIN EN 15085-4

Chapter 4.1.4

⇨ **Weld performance class CP A:**

WPQR according to EN ISO 15614 or EN ISO 15620;
According to EN ISO 15613 only if a WPQR according to EN ISO 15614 is present;
For materials with Reh > 500 MPa or for fully automated welding only
EN ISO 15614 is possible
Test pieces must fulfill the requirements of weld performance class CP A (EN 15085-3, tables 5 and 6)

⇨ **for weld performance class CP B, CP C1, CP C2:**

WPQR according to EN ISO 15613, EN ISO 14555, EN ISO 15620;
If required by component or material: according to EN ISO 15614

Note: EN ISO 15610, EN ISO 15611, EN ISO 15612 not possible

⇨ **for weld performance class CP C3:**

WPQR according to EN ISO 15610, 15611, 15612, 15613, 14555, 15620
If required by component or material: according to EN ISO 15614

⇨ **for weld performance class CP D:** only if requested by customer