

Clause-by-Clause Comment - Cover sheet

Customer:	ALSTOM		
Project name:	KUNDENSPEZIFISCHE DOKUMENTE		
Voith project ID:	intern		
Specification title:	Welding conditions for purchased or sub-contracted mechanically-welded parts		
Specification file name:	DTRF150215_J_DE .pdf, DTRF150215_J_EN.pdf		
Specification revision:	J		
Specification date:	9/23/2016		
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Revision of this CbC:	00		
Date:	11.04.2024 12:16:54		
History of revisions of this CbC-document:			
Revision	Date	Reason for change	Description of change
00			First issue

Clause-by-Clause Comment

Revisor: 00		Project name: KUNDENSPEZIFISCHE DOKUMENTE						SAP-ID: intern			
Date: 11.04.2024 12:16:54	Original document title:						Revisor: J				
		Welding conditions for purchased or sub-contracted mechanically-welded parts						Date: 9/23/2016			
Clause	Clause title	We comply	We comply, but	We do not comply	Noted	Not applicable	Clarification necessary	Comment Voith	VT-internal note: commented by VT department	Comment Customer	Agreed and final comment (only necessary if a "Comment Customer" is given)
1.	FIELD OF APPLICATION				x						
2.	QUALITY REQUIREMENTS ACCORDING TO CERTIFICATION LEVEL										
2.1	Supplier qualification (valid for CL1, CL2, CL3 and CL4)		x					"For welded components with certification level CL 1 and CL 2 according to EN 15085-2 design documents, if the design is done by the supplier, work schedule and weld inspection plan (see chapter 2.14.1) are necessary and has to be delivered to ALSTOM Transport." Quality plan, design documents, work schedule and weld inspection plan can be inspected within the scope of audits but are not handed over.			
2.2	Design requirements		x					"According to EN 15085-3, chapter 7.4 the drawing must indicate the following specifications of every weld unequivocally: o Weld performance class according to EN 15085-3" In our system, the weld performance class is specified in the parts list			
2.3	Sub-contracting (valid for CL1, CL2, CL3 and CL4)	x									
2.4	Welding coordination (valid for CL1, CL2, CL3 and CL4)	x									

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2.5	Welders and operators (valid for CL1, CL2 and CL3)						x	The following particularities call for a production weld test (to evaluate the skill of the welder see EN 15085-4, chapter 4.2.4 and EN 15085-2, chapter 5.1.1) • Partially or full penetrated butt joints or T-joint We assume that the wording from EN 15085-4 was taken over incorrectly here. EN15085-4 4.2.4 states: "Production weld tests for the qualification of welders (depending on their specific tasks) may be necessary "for HV or HY welds on T joints" We think that was meant and not: "Partially or full penetrated butt joints or T-joint"			
2.6	Requirements of welding activities (valid for CL1, CL2 and CL3)	x									
2.7	Welding Procedure Specification (valid for CL1, CL2 and CL3)		x					"For fusion welds with a weld thickness of more than 4 mm for steel and 5 mm for aluminium alloys ALSTOM recommends multi-layer welding for a better process reliability." We weld fillet welds on steel up to 5 mm in one layer.			
2.8	Qualification of welding procedures (valid of CL1, CL2 and CL3 apart from exceptions)										

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2.8.1	Welding		x					"For welded parts with certification level CL1 according to EN 15085-2 with carbon steel and a minimum thickness of 6 mm, an impact test and a specific hardness test without any difference higher than 80 HV between heat-affected zone (HAZ) and weld metal have to be performed in a WPQR." For steels for quenching and tempering, we cannot always fulfil his condition.			
2.8.2	Other welding process		x					"Other welding processes can be used only with the acceptance by Alstom Transport" On welded assemblies of front ends we use resistance welding methods for weld-on nuts"			

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2.9	Welding consumables (valid for CL1, CL2 and CL3)						x	<p>.."Welding consumables employed according to the WPQR, has to have a type « DB Abnahme » certificate available from the supplier (see also www.en15085.net). The grades of base metals, welding positions and shield gases employed must figure there; otherwise, the consumable must not be utilized"... "The supplier has to take care that the use of the welding consumables is done according to the product description of the producers of the welding consumables." For steels for quenching and tempering, we deviate from the requirements mentioned. Both in the product descriptions of the manufacturers and in the DB approvals, the basic materials used by us cannot be found exactly. This concerns the following Materials: 42CrMo4 (1.7225 group 5.1) 25CrMo4 (1.7218 group 5.1) G26CrMo4 (1.7221 Group 5.1) GX7CrNiMo12-1 (1.4008 Group 7.2) 30CrNiMo8 (1.6580 No clear group classification possible)</p>			
								This also affects all welded connections on earthing nipples. We weld these connections made of steel and a slug made of 1.4301 in all combinations with the filler material DIN EN ISO 14343-A-G 18 8 Mn (1.4370).			
								Our stainless steel pipe sockets are made of the basic materials 1.4301, 1.4308, 1.4541, 1.4571. We weld these basic materials in all combinations with the filler material 1.4576.			
2.10	Base metals (valid for CL1, CL2, CL3)										

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2.10.1	Cutting, edges to be welded	x									
2.11	Post-weld heat treatment (PWHT) (valid for CL1, CL2, CL3)							We assume that only stress relief annealing is involved and not other heat treatments			
2.11.1	Loading in the oven						x	"At ambient temperature or in every case less than 200°C elements to be treated have to be placed..." Our instructions allow up to 250°C			
2.11.2	Control of temperature	x									
2.11.3	Increase of temperature	x									
2.11.4	Increase of temperature						x	According to Voith instructions: Temperature depending on material between 520 and 640°C Holding time: 1 min per mm of the thickest wall but at least 30min			
2.11.5	Cooling						x	"...cooling in the oven at 120°C/hour maximum. The oven will be opened when the treated load will achieve a temperature of 200°C..." Our maximum values are 100 - 150 K/h and below 250°C.			
2.11.6	Inspection	x									
2.12	Performance of the welding										
2.12.1	General	x									
2.12.2	Straightening					x					

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2.13	Finishing (valid for CL1, CL2, CL3)						x	" After welding of stainless steel the temper colors must be removed by pickling or passivation, other possibilities of their removal must be agreed by ALSTOM Transport...." To remove temper colors we also use grinding, brushing and blasting according to EN15085-4 without informing Alstom and without Alstom's permission.			
2.14	Inspection and testing (valid for CL1, CL2, CL3 and CL4)										
2.14.1	General						x	"... The inspection plan, ... must be submitted to the Alstom SQA or SPQD for validation. ... " The inspection plan can be inspected within the scope of audits, but are not handed over.			
2.14.2	Dimensional and geometric of welded parts	x									
2.14.3	Dimensional and geometric of the machined welded parts	x									
2.14.4	Non destructive testing (NDT)						x	"... ALSTOM Transport has to be informed before the start of the production if ultrasonic testing (UT) or radiographic testing (RT) will be used, if necessary. ..." If RT / UT tests are necessary we do not inform Alstom before the start of production. ".....the inspections must necessarily be carried out in the following order: VT then surface test (PT or MT) then volumetric test (UT or RT)...." We reserve the right to change the order			

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2.14.4.1	Leak testing						x	We carry out leak tests in accordance with our factory standard Q172			
2.14.5	Destructive testing of welded joints	x									
2.15	Non-conformity and corrective measures (valid for CL1, CL2 and CL3)										
2.15.1	General		x					"...According to EN 15085-5, chapter 7.2.1, the supplier must inform Alstom Transport about all non-conformities..." According to EN 15085-5, chapter 7.2.1 this is only provided if it is required in the contract.			
2.15.2	Repair welding		x					"...These instructions shall be available in the workstation and send to ALSTOM Transport for information and acceptance, if necessary..." Instructions can be inspected during a welding audit.			
2.16	Calibration and verification of measuring equipment, inspection and tests (valid for CL1, CL2 and CL3)	x									
2.17	Records related to quality (valid for CL1, CL2, CL3 and CL4)	x									
3.	STATE OF MECHANICALLY-WELDED PARTS	x									
4.	TENDER						x	At the time of the tender, most of the documents mentioned are not yet available. Only the certificate according to EN 15082-2 can be submitted.			

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	ANNEX A (NORMATIVE) CHOICE OF WELDING CONSUMABLES										
A.1	Foreword	x									
A.2	Introduction	x									
A.3	Field of Application	x									
A.4	General						x	"...The welding consumables can only be used for base materials, whose material groups according to ISO/TR 15608 are mentioned in the certificate of the base material..." (spelling mistake, „base material" must be called welding consumable, see German edition) "...Only the welding positions and shield gases can be used, which are mentioned in the certificate of the welding consumable. ..." We partly deviate from this, see 2.9			
A.5	Welding Consumables for Carbon steel						x	We also use other carbon steels: S355J2+AR S355J2+M in accordance with Deutsche Bahn-Standard DBS 918 002-01 and further P355NL2+N, P460NL1, S690QL1+Z25, C15, C40, C45			
A6	Welding Consumables for Stainless Steel						x	see 2.9			
A7	Welding Consumables for Aluminium Alloys					x					

Clause-by-Clause Comment - Definitions

We comply:	Clause is applicable to Voith's scope of supply and will be met
We comply, but:	Clause is applicable to Voith's scope of supply but will only be met partially, see "Comment"
Noted:	Clause has been noted, but does not require a specific action by Voith
We do not comply:	Clause is applicable to Voith's scope of supply but will not be met
Not applicable:	Clause is not applicable to Voith's scope of supply
Clarification necessary	Requirement is unclear and needs to be clarified between Voith and customer