STADLER

Document no. **AL_6151684**
Index _
State Released
Document type Specification
Number of pages 19

TS-0182-00 Delivery specification for welded & machined components

General part

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	21.10.2024	gebmic	28.11.2024	rj	02.12.2024

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Revision index

Index	Change	Date	Created	Checked	Released
_	First edition based on BU_1172900 (TS-0179-01)	04.11.2024	R. Boos / P. Enz	M. Gebel	J. Ruess
a					
b					
c					

Table of contents

Scope of application

This technical specification regulates the requirements for suppliers and deliveries of welding and machining assemblies, laser, edging, bending and machining parts as well as semi-finished products, welding consumables, castings and forgings.

This specification applies in conjunction with the product-specific parts listed below in this specification, which are listed as items in the parts list, drawing or in the purchase order:

Delivery specification for welded assemblies:

TS No.	Designation	
TS-0182-S1	Components with high structural relevance	CL 1
TS-0182-S2	Components with medium structural relevance	CL 1
TS-0182-S3	Components with low structural relevance	CL 2

Delivery specification for machining assemblies/parts:

TS No.	Designation
TS-0182-B1	Components with high structural relevance / machining complexity
TS-0182-B2	Components with medium structural relevance / machining complexity
TS-0182-B3	Components with low structural relevance / machining complexity

1 Quality management

1.1 All Stadler suppliers must have a valid ISO 9001 certificate.

1.2 All suppliers of welded components must have a valid certificate in accordance with EN 15085-2 and DVS guideline 1619-4 in the defined classification level with the respective area of activity (D, P, M, S). The scope of application must fulfil the requirements on the drawings.

- Welding process according to ISO 4063
- Material group according to ISO/TR 15608
- Dimensions
- Weld type

1.2.1 The certificate must be listed in the online register JOINCERT - EN15085.

1.3 Stadler is authorised to audit the supplier in the area of welding and/or machining.

2 Quality planning

2.1 If required in the relevant part of this specification, the supplier must prepare a test plan for the welded and/or machined components. It describes which tests are to be carried out at what time and to what extent, as well as which documents are to be created.

2.2 If required in the relevant part of this specification, an NDT test plan must be drawn up for specially tested weld seams. The number of tested parts must be visible in the test planning.

2.3 NDT test instructions must be available for each test procedure.

2.4 A welding procedure qualification (WPQR) and an approved welding procedure specification (WPS) must be available for each weld in accordance with the generally applicable standards as per EN 15085-4.

2.5 Only qualified welding and testing personnel in accordance with EN 15085 may be used.

2.6 Work samples must be prepared at least in accordance with EN 15085-4 and DVS leaflet 1621. These work samples must be listed in a work sample plan. The validity of the work sample must also be defined in accordance with leaflet DVS 1621. Stadler's welding supervision can extend the scope of the work samples. The results of each work sample must be documented in a work sample test report.

2.7 At least the test planning, work sample test plan and the corresponding work sample test reports must be sent to Stadler prior to any FAI.

3 Subcontracting of welding work

If welding work is subcontracted, the same requirements apply as for the main supplier. The main supplier is responsible for ensuring that their sub-supplier fulfils all requirements of the respective part of this delivery specification.

3.1 The responsible purchaser at Stadler must be informed in writing before welding work is subcontracted. If defined in the relevant part of this specification, Stadler may object to the subcontracting.

3.2 The main supplier must be certified in accordance with EN 15085-2 for subcontracting in the "S" (purchasing and delivery) area of activity and the subcontractor must be certified in accordance with EN 15085-2 for the respective "P" (production) / "M" (maintenance) area of activity.

3.3 The subcontractor must be audited by the main supplier in accordance with DVS leaflet 1617.

3.4 The main supplier must execute a first article inspection (FAI) at the sub-supplier's premises.

4 Production documentation

4.1 If required in the relevant part of this specification, measurement reports must be prepared by the supplier. These measurement reports must be created in accordance with the test planning and must contain all the required measurement results. Unless otherwise specified in the test plan, all masses per part, including those of the sub-assemblies, must be recorded in the measurement report. The measurement report must be approved by the supplier.

4.2 The NDT test certificates must be documented.

4.3 If required in the relevant part of this specification, a production and test certificate with at least the content defined below must be created for each component.

No.	Table of contents	S1	S2	S3	B1	B2*	B3*
4.3.1	Component data	x	x	x	x	x*	x*
4.3.2	100% traceability of the components incl. batch number	Class A	Class A	-	-	Class A	Class A
4.3.3	Welding production certificate (Who welded the part)	x	x	x	-	-	-
4.3.4	Component tests incl. verification of the criteria	acc. test plan	acc. test plan**	acc. test plan**	acc. test plan	-	-
4.3.5	Deviation report with special release from Stadler	x	x	x	x	x*	x*
4.3.6	Component release	x	x	x	x	x*	x*

*If requested by Stadler

**The necessity of the test certificate must be defined by the supplier's vSAP

4.4 If required in the relevant part of this specification, the supplier must confirm the torques for screws for each component for assembly parts in a test report.

5 Documents to be delivered to Stadler

5.1 A delivery note with reference to the acceptance test certificate 3.1 in accordance with EN 10204 must be created and sent to Stadler.

No.	Table of contents	S1	S2	S3	B1	B2	B3
5.1.1	Reference to 3.1 ATC of the welded assembly or milled part	x	x	x	x	x	-
5.1.2	Reference to 3.1 ATC of the semi-finished product	-	-	-	-	-	x

5.2 If required in the relevant part of this specification, the required measurement reports must be sent to Stadler.

5.3 If required in the relevant part of this specification, the verification documents or the NDT test reports for CT1 and CT2 and the specified test areas must be sent to Stadler in accordance with the drawing.

5.4 If required in the relevant part of this specification, the manufacturing and test certificates must be sent to Stadler.

5.5 If required in the relevant part of this specification, an acceptance test certificate 3.1 in accordance with EN 10204 must be issued by a production-independent acceptance centre, in which conformity with the purchase order is confirmed on the basis of specific tests.

The sample acceptance test certificate 3.1 in accordance with EN 10204 in Appendix A can be used as a template. The acceptance test certificate must contain at least the following information:

- Supplier name / logo
- Purchaser
- Order number and order item
- Project number
- Article number, drawing number and index incl. article designation
- Serial number
- An overview of the specific test documentation (e.g.: FPN, measurement report, NDT reports, etc.)

5.6 If required in the corresponding part of this specification, an overview list with material specifications must be created for the 3.1 acceptance test certificates of the base materials of the manufactured assembly / component. The sample overview list in Appendix B can be used as a template. The overview list must contain at least the following information:

- Project number
- Order number and order item
- Article number and article description
- Quantities
- Material specification
- Class of semi-finished products (A or B)
- Reference to 3.1 acceptance test certificate of the base material

At least the following semi-finished products must be included in the overview list:

No.	Table of contents	S1	S2	S3	B1	B2	B3
5.6.1	3.1 **Class A** acceptance test certificates: First article inspection (FAI) and during the entire series	FAI + series	FAI + series	-	-	FAI + series	FAI + series
5.6.2	3.1 **Class B** acceptance test certificates: First article inspection (FAI)	FAI	FAI	FAI	-	FAI	FAI
5.6.3	Acceptance test certificates 3.1 for **Class C:** not required	-	-	-	-	-	-

If a system for the traceability of the 3.1 acceptance test certificates with the same details as on the list is available, the overview list can be dispensed with.

5.7 If required in the relevant part of this specification, the 3.1 acceptance test certificate for the welded or machined assembly / component, the overview list and all 3.1 acceptance test certificates for the base material from the overview list must be sent to Stadler.

5.8 All acceptance test certificates for the welding consumables must be available for any first article inspection (FAI). The following material properties must be shown on the test certificates at least as follows:

- Chemical composition: Type 3.1 according to EN 10204
- Mechanical properties: Type 2.2 according to EN 10204

5.9 Unless otherwise defined in the purchase order, DB safety approval of all filler materials used must be available for any first article inspection (FAI). The certificates can be downloaded at JOINCERT - EN15085 ..

General information

- All acceptance test certificates and test documents must be kept for at least 30 years.
- All documents to be delivered must be sent without being requested to the e-mail address defined in the purchase order.

6 Traceability

6.1 Requirements for the traceability of semi-finished products. Semi-finished products include the following products:

- Sheets, plates and flat products
- Profiles, pipes, rods, blanks, etc.

If traceability is required for the semi-finished products, the information on the requirement classes is specified on the parts list or on the drawing.

If no requirement class is specified on the parts list or on the drawing, requirement class B applies.

No.	**Requirement class**	Traceability	Identification marking on the part	Overview list	Documents to be supplied
6.1.1	**Class A**	100% batch traceability of each sheet metal or profile section of the manufactured assembly / component in the production documentation.	Labelling of the batch number on the part.	Creation of an overview list of all existing 3.1 acceptance test certificates for each part of the entire series in accordance with the template or using a corresponding system.	All 3.1 acceptance test certificates must be sent to Stadler.
6.1.2	**Class B**	The batch numbers of the base materials used must be traceable per project / purchase order.	-	Creation of an overview list of all existing 3.1 acceptance test certificates of the initial sample in accordance with the template or by a corresponding system.	All 3.1 acceptance test certificates for the initial sample must be sent to Stadler.
6.1.3	**Class C**	-	-	-	-

6.2 Requirements for the traceability of welding consumables

- If specifically required by Stadler, the batch number of the welding consumables used must be traceable for each project.

7 Labelling

Unless otherwise indicated on the drawing, the component must be clearly and visibly labelled with a weather-resistant adhesive label in accordance with the relevant part of this specification.

7.1 If required in the relevant part of this specification, each component requires a component label or an adhesive label with the following content:

No.	**Table of contents**	**Labelling per part (preferred)**					
		S1	**S2**	**S3**	**B1**	**B2**	**B3**
7.1.1	Supplier name / logo	x	x	x	x	x	x
7.1.2	Order number and order item	x	x	x	x	x	x
7.1.3	Project number	x	x	x	x	x	x
7.1.4	Drawing number, Index	x	x	x	x	x	x
7.1.5	Article number	x	x	x	x	x	x

7.1.6	Serial number	x	x[2]	If required	x[3]	-	-
7.1.7	Batch number of supplier	-	-	-	-	Class A	Class A
7.1.8	2D data element[1]	x	x[2]	-	x	Class A	Class A
7.1.8.1	GTIN	x	x	-	x	x	x
7.1.8.2	Serial number	x	x	-	x[3]	-	-
7.1.8.3	Batch number of supplier	-	-	-	-	x	x
7.1.8.4	Drawing number	x	x	-	x	x	x
7.1.8.5	Drawing index	x	x	-	x	x	x

[1] The marked data elements with no. 7.1.8.x must be created in a 2D code according to BU_6158698.
[2] Required for vehicle body components (e.g: side walls, front and rear walls, intermediate floors, door portals, roof ends, etc.)
[3] Transfer the serial number of the welded preassembly to the machined part

7.2 If permitted in the relevant part of this specification, part identification per packaging unit / delivery unit for bulk goods is permitted.

No.	**Table of contents**	**Labelling per packaging unit (only permitted for bulk goods)**					
		S1	**S2**	**S3**	**B1**	**B2**	**B3**
7.2.1	Supplier name / logo	-	-	x	-	-	x
7.2.2	Order number and order item	-	-	x	-	-	x
7.2.3	Project number	-	-	x	-	-	x
7.2.4	Drawing number, Index	-	-	x	-	-	x
7.2.5	Article number	-	-	x	-	-	x

8 Series release

Internal first article inspection by supplier

8.1 A first article inspection must always be carried out by the supplier and documented accordingly to ensure that the part fulfils all the requirements of the drawing or purchase order. All dimensions on the drawing (including the drawing of the subcomponents) must be measured. These measurements, further tests and NDT test certificates must be documented in an initial sample test report. The sample report in Appendix C can be used as a template.

External first article inspection (FAI) by Stadler

8.2 If an FAI is required by Stadler, Stadler must be notified of readiness for acceptance at least 10 working days before the planned date of the first article inspection. The internal first article inspection must be passed at the time of the first article inspection by Stadler. The corresponding part must also be positioned in such a way that all features can be checked. The components are always accepted in their raw state (without paintwork). During the first article inspection, all documents relating to the component and the part itself are inspected. The result of this check is a complete release, conditional release or no release.

- Only a complete release is considered a release for the series!
- A conditional release is a series release under pending issues that must be processed by the agreed deadline using the agreed proof document.
- If no approval is granted, the part may not be used (initially) and series production may not be started. In this case, the first article inspection must be repeated by Stadler.

8.2.1 The first article inspection by Stadler is preferably carried out at the supplier's premises.

8.2.2 If necessary, the first article inspection can also be carried out at Stadler's incoming goods department.

All documents relevant for the first article inspection must be sent to Stadler before the FAI.

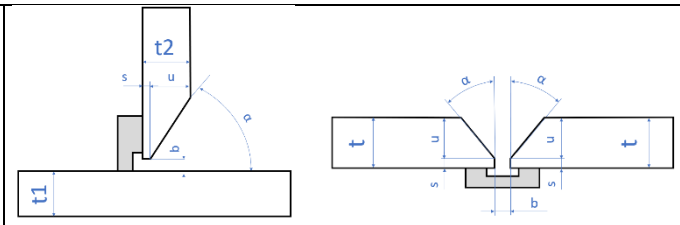
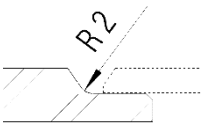
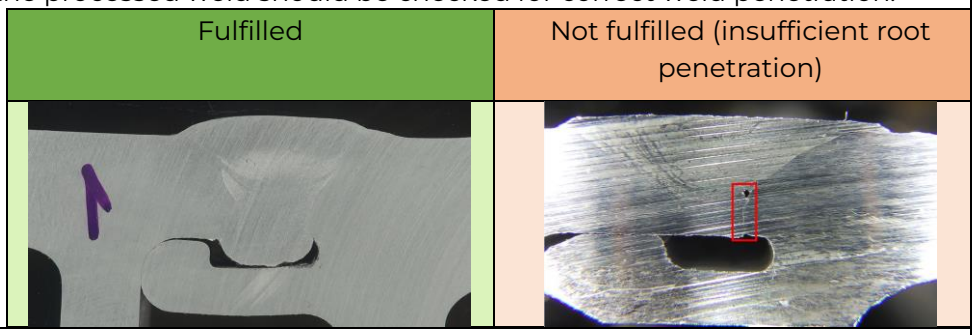
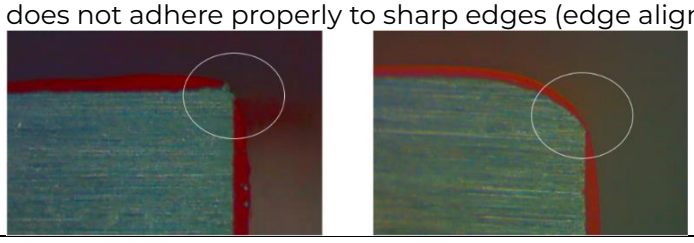
9 Parts delivery

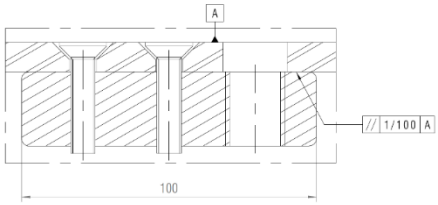
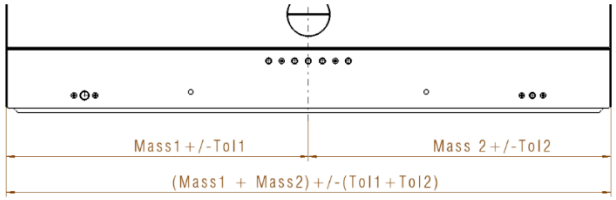
The parts are to be delivered in inspected and cleaned condition, cleanly packed and clearly labelled. If possible, the parts are to be delivered on EURO pallets, see supplier / transport regulations or logistics specification.

The following requirements apply concerning the surface quality:

- General requirements:
  - Clean and dry
  - Free of shavings, oils and any cooling water residues
- Steel components:
  - Free of rust and scale
  - All weld preparations must be metallically bright and clean
  - Machined functional surfaces (fits) must be metallically bright, clean and protected against corrosion.
- Stainless steel components:
  - Free of tempering colours and scale
  - Free of scratches
- Cutting quality:
  - Surface of lasered edges: ISO 9013-**331**
  - Surface of cut edges: ISO 9013-**332**

10 Basic requirements for mechanical machining

<table>
<tr><th>Type</th><th>Additional information for the machining drawing</th></tr>
<tr><td rowspan="5">Weld preparation chamfers and integrated weld pool backing</td><td>The following dimensions must be checked for mechanically machined welding bevels:</td></tr>
<tr><td>- Bevelled angle (α)
- Web height (s)
- Bevel depth (u)
- Weld gap (b)
- Wall thicknesses (t)
  </td></tr>
<tr><td>Unless otherwise indicated on the drawing, the tolerance for the web height (s) applies to welding bevels of ±0.5mm</td></tr>
<tr><td>Unless otherwise indicated on the drawing, the following tolerances apply to the wall thickness (t):
-0/+0.5</td></tr>
<tr><td>Sharp-edged transitions with integrated weld backing material must be avoided. (Unless otherwise indicated on the drawing, the transition radius should be 2 mm)
  </td></tr>
<tr><td>Do not damage the top surface</td><td>When machining profiles, care must be taken to ensure that the profile wall thickness is not damaged when machining internal webs; the manufacturing tolerances of the profile to be machined must be taken into account. Unless otherwise indicated on the drawing, max. 0.2 mm protrusion is permissible (if necessary, these points must be reground by hand)</td></tr>
<tr><td>Inspecting the weld penetration</td><td>If mechanical machining is carried out at right angles to the weld seam, the processed weld should be checked for correct weld penetration.
  </td></tr>
<tr><td>Sharp-edged outer edges</td><td>In the painted area
Outer radii (drawing and/or 3D model) must be adhered to, as the paint does not adhere properly to sharp edges (edge alignment).
  </td></tr>
</table>

	General Although external radii are modelled, they are not necessarily dimensioned again on the drawing. R0.3-0.5mm or "broken edges" applies to all non-modified outer radii
MF dimension	The use of a manufacturing dimension (MF dimension) defined on the drawing is defined in the manufacturing specification AL_5523653.
Tolerances for steel backing plates	Unless otherwise indicated on the drawing, the parallelism for steel backing plates is as follows: 
Symmetrically dimensioned lengths	The test dimension is the sum of the two dimensions. The tolerance can also be added. 

11 General requirements

Purchaser-provided products

If semi-finished products or components are provided by Stadler for further processing, they must be labelled, stored and processed in accordance with the order.
For direct shipments to Stadler suppliers, the required documents must be sent with a copy of the delivery note to the e-mail address specified in the purchase order.

Ordering/purchasing semi-finished products

All semi-finished products must be ordered with a 3.1 acceptance test certificate in accordance with EN 10204 to ensure that the material fulfils the requirements. Proof of the supplier's management system.

Process / organisational changes

Any significant change or improvement to the process or organisation after the first article inspection has been carried out by Stadler (FAI) must be notified in writing in advance and approved by Stadler.

Implementation regulations according to DIN 6700

DVS leaflet 1623 is used for components that have been designed, specified and drawn in accordance with DIN 6700 and are protected as existing components, and is valid for implementing handling in production in accordance with EN 15085.

12 Requirements for steel semi-finished products

Application for steel bogie and car body

The general semi-finished steel products must comply with the following standards:

EN 10149	Hot-rolled flat products made of steels with high yield strength for cold forming
EN 10268	Cold-rolled flat products made of steels with high yield strength for cold forming
EN 10130	Cold-rolled flat products made of soft steels for cold forming
EN 10219	Cold-finished welded hollow sections for steel construction made from unalloyed structural steels and fine-grained structural steels

EN 10210	Hot-finished hollow sections for steel construction made from unalloyed structural steels and fine-grained structural steels
EN 10088	Stainless steels: Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire rod, drawn wire, profiles and bright products of corrosion resisting steels for general purposes
EN 10296	Welded circular steel tubes for mechanical engineering and general technical applications - Technical delivery conditions: Part 1: Non-alloy and alloy steel pipes Part 2: Stainless steels
EN 10297	Seamless circular steel tubes for mechanical engineering and general technical applications - Technical delivery conditions: Part 1: Non-alloy and alloy steel pipes Part 2: Stainless steel tubes
EN 10217	Welded steel tubes for pressure applications - Technical delivery conditions: Part 1: Electrically welded and submerged arc welded non-alloy steel tubes with specified room temperature properties Part 7: Stainless steel tubes
EN 10305	Precision steel tubes - Technical delivery conditions: Part 1: Seamless cold drawn pipes Part 2: Welded cold drawn pipes Part 3: Welded cold sized pipes Part 4: Seamless cold-drawn pipes for hydraulic and pneumatic pressure lines
TS-00008	Pneumatic pipework and screw connections

The following characteristics must be certified in the 3.1 acceptance test certificate in accordance with EN 10204:

- Chemical analysis incl. carbon equivalent (CEV)
- Yield strength / yield point: Rp0.2 / ReH
- Tensile strength: Rm
- Elongation at break: A5
- Notch impact energy from t=6mm
- Z-quality: (only if expressly requested in the purchase order)

13 Requirements for steel bogie and car body applications

The following specifications apply to steel bogie and car body applications:

Flat steel			Pipes			Cyl. steel		
EN 10025-2	S355J2 +N	AL_1250051	EN 10210	S355 NH	AL_2066379	EN 10025-3	S355 NL	AL_2060405
EN 10025-2	S355J2C +N	AL_1250051	EN 10216-3	P355 NL1	AL_2063617	EN 10025-3	S460 NL	AL_2063282
EN 10028-3	P355 NL1	AL_1373625	EN 10216-3	P355 NL2	AL_2043156			
EN 10028-3	P355 NL2	AL_1363448	EN 10210	S355 NLH	AL_2062022			
EN 10028-3	P460 NL1	AL_1373626	EN 10305-1	E355 +N	AL_2041766			
EN 10028-3	P460 NL2	AL_1373627						
EN 10025-3	P460 NL	BU_1724425						
EN 10025-6	S690 QL1	PR_1359984						
EN 10025-6	S690 QL	BU_1563178						

14 Requirements for semi-finished aluminium products

The semi-finished aluminium products must comply with the following standards:

EN 13981	Aluminium and aluminium alloys - Products for load-bearing applications in railway vehicles; Technical delivery conditions: Part 1: Extruded products Part 2: Plates and sheets Part 4: Forgings

EN 573	Aluminium and aluminium alloys - Chemical composition and form of semi-finished products Part 1: Numerical labelling system Part 3: Chemical composition and product forms
EN 485	Aluminium and aluminium alloys - strips, sheets and plates Part 1: Technical delivery conditions Part 2: Mechanical properties Part 3: Limit dimensions and shape tolerances for hot-rolled products Part 4: Limit dimensions and shape tolerances for cold-rolled products
EN 755	Aluminium and aluminium alloys - Extruded rods, tubes and profiles Part 1: Technical delivery conditions Part 2: Mechanical properties Part 3: Round bars, limit dimensions and form tolerances Part 4: Square bars, limit dimensions and form tolerances Part 5: Rectangular bars, limit dimensions and form tolerances Part 6: Hexagonal bars, limit dimensions and form tolerances Part 7: Seamless tubes, limit dimensions and form tolerances Part 8: Tubes extruded with chamber tools Part 9: Profiles, limit dimensions and form tolerances
EN 586	Aluminium and aluminium alloys - forgings Part 1: Technical delivery conditions Part 2: Mechanical properties and additional property requirements Part 3: Limit dimensions and form tolerances
EN 515	Aluminium and aluminium alloys - Semi-finished products - Designation of material states

The following characteristics must be certified in the 3.1 acceptance test certificate in accordance with EN 10204:

- Chemical analysis as per EN 573-3
- Yield strength: Rp0.2
- Tensile strength: Rm
- Elongation at break: A50

15 Requirements for forged and cast parts

The component-specific specifications in accordance with the drawing and parts list apply to forged and cast parts.

16 Requirements for special structural profiles/sheets and sheet metal parts in the crash area

For special structural profiles/sheets or sheet metal parts in the crash area, the component-specific specifications in accordance with the drawing and parts list apply.

17 Requirements for welding consumables

The filler materials must comply with the following standards:

ISO 18273	Welding consumables - Solid wires and rods for fusion welding of aluminium and aluminium alloys - Classification
ISO 14343	Welding consumables - Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat-resistant steels - Classification
ISO 14341	Welding consumables - Wire electrodes and welding consumables for gas metal arc welding of unalloyed steels and fine-grained steels - Classification
ISO 636	Welding consumables - rods, wires and welding consumables for tungsten inert gas welding of unalloyed steels and fine-grain steels - classification

Appendix A

Zeugnis-Nr.: *Certificate No.:*	**3.1-Abnahmeprüfzeugnis nach EN 10204** *3.1 Acceptance Test Certificate acc. to EN 10204*

Purchaser *Orderer*		**Lieferer / Hersteller** *Supplier / Manufacturer*	
Vertrags-/ Bestell-Nr. inkl. Position *Contract / Order no. with position*		**Projekt-Nr.** *Project no.*	
Produktbezeichnung / Artikel- und Zeichnungsnummer inkl. Index *Product designation / article no. and drawing no. with index*		**Serien.-Nr.** *Serial no.*	
Lieferschein Nr. *Delivery note*		**Prüfplan** *Test plan*	
Bauartzulassung-Nr. *Type approval no.*		**Prüfplan Änderungsstand** *Testplan Change Status*	
Techn. Lieferbedingungen / Spezifikation / Norm(en) / Richtlinien *Techn. delivery conditions / specification / standard(s) / directives*		**Kommentare** *Comments*	

Hinweise / Prüfergebnisse: *Notices / Test results:*

Übersicht der Prüfdokumentation *Overview of test documentation*	**Dokumenten Nr. /Prüfdatum des Lieferanten / Herstellers** *Document no. / Test date of supplier / manufacturer*
	/
	/
	/
	/
	/

Der Hersteller bestätigt aufgrund von Ergebnissen aus Prüfungen an der Lieferung selbst, dass oben angeführte Gegenstände den Vereinbarungen der Bestellung entsprechen. Alle Prüfdokumente werden über einen Zeitraum von mindestens 30 Jahren aufbewahrt. Eine Überprüfung der Dokumente durch den Besteller ist zu jeder Zeit möglich.
The manufacturer confirms on the basis of results from tests on the delivery itself, that above mentioned items comply with the agreements of the order. All test documents are kept for a period of at least 30 years. A review of the documents by the customer is possible at any time.

Name Lieferant / Hersteller
Name of supplier / manufacturer
Abnahmebeauftragter des Herstellers / Acceptance representative of the manufacturer

_____
Datum / Name *Date / Name* Unterschrift *Signature*

Appendix B

Overview list of the 3.1 inspection certificates

Project no.: *L-0000*			**Order no.:** *PO1234567*				Supplier name / Logo	
Order item.:	**Quantity / unit:**		**Stadler artikel no.:**	**Designation:**	**Material designation:**	**Heat treatment condition:**	**Class semi-finisehd product:**	**Reference to 3.1 inspection certificate:**
001	*5*	*St.*	*12345678*	*Profil xxxxx*	*EN AW 6005A*	*T6*	*A*	*Batch no.: ABC-123-XY*
001	*7*	*St.*	*12345678*	*Profil xxxxx*	*EN AW 6005A*	*T6*	*A*	*Batch no.: ABC-123-XY*
002	*20*	*St.*	*87654321*	*Blech t=4*	*EN AW 5754*	*H12/H22*	*B**	*A-000-000*
002	*50*	*St.*	*87654321*	*Blech t=4*	*EN AW 5754*	*H12/H22*	*B**	*A-000-000*
004	*1*	*St.*	*11223355*	*Beigestelltes Profil*	*EN AW 6082*	*T6*	*B**	*Batch no. if avialable, otherwise delivery note no. Stadler*

** Class B only for first artilce necessary*
Overview list necessary for S1, S2, B2 and B3
Overview list for S3 only if specially required by Stadler

Appendix C

Deckblatt

Erstmusterprüfbericht

Absender

Firma:
Strasse:
Werk:
Ansprechpartner:
PLZ Ort:

Empfänger:

Firma:
Strasse:
Ansprechpartner:
PLZ Ort:

☐ **Erstmusterprüfbericht**
- ☐ Erstbemusterung
- ☐ Nachbemusterung
- ☐ Neuteil
- ☐ Produktänderung
- ☐ Produktionsverlagerung
- ☐ Änderung Produktionsverfahren
- ☐ Längeres Aussetzten der Fertigung
- ☐ Neuer Unterlieferant
- ☐ Dokumentationspflichtiges Teil

☐ **Nachbemusterung**

☐ **Neubemusterung**

Anlagen		
☐ 01 Massprüfung	☐ 03 ZfP-Prüfung	☐ 05 Arbeitsprobe
☐ 02 Werkstoffprüfung	☐ 04 Zertifikat	☐ ...

Lieferant / Fertigungsstandort:	**Kunde:**
Berichts-Nr.: **Version:**	**Berichts-Nr.:** **Version:**
Artikelnummer:	Artikelnummer:
Zeichnungsnummer:	Zeichnungsnummer:
Index:	Index:
Benennung:	Benennung:
Bestellnummer:	Bestellnummer:
Projekt:	Projekt:
Lieferschein-Nr.:	**Wareneingangs-Nr.:**
Liefermenge:	Bestellabruf-Nr.:
Chargennummer:	Abladestelle:
Mustergewicht:	Termin Nachbemusterung:

Bestätigung Lieferant:

Hiermit wird bestätigt,
1. dass die vorgestellten Erstmuster vollständig mit serienmässigen Betriebsmitteln und unter serienmässigen Bedingungen hergestellt worden sind.
2. die korrekte Durchführung der Erstmusterprüfung und ihre Darstellung in diesem Erstmusterprüfbericht (Abweichungen sind in diesem Bericht besonders angegeben).
3. dass eine Freigabe den Lieferanten und alle seine allfälligen Unterlieferanten nicht von der Verantwortung, nach der jeweils gültigen Zeichnung, technischen Spezifikationen, geltenden Normen, Bestellung und vorgeschriebenen Funktionsvorschrift zu liefern, entbindet.

Name:	Bemerkung:
Abteilung:	
Telefon:	
E-Mail:	
Datum Unterschrift	

Entscheidung Kunde:	**Gesamt**	**Einzelfreigaben**														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Frei	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Frei mit Auflagen, Nachbemusterung erforderlich	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Abgelehnt, Nachbemusterung erforderlich	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Antrag auf Sonderfreigabe Nr.:																
Bei Rücksendung Lieferscheinnr. /Datum:																

Name:	Bemerkung:
Abteilung:	
Telefon:	
E-Mail:	
Datum Unterschrift	

Prüfergebnisse

Produktbezogen

Lieferant / Fertigungsstandort:		Kunde:	
Berichts-Nr.:	**Version:**	**Berichts-Nr.:**	**Version:**
Artikelnummer:		Artikelnummer:	
Zeichnungsnummer:		Zeichnungsnummer:	
Index:		Index:	
Benennung:		Benennung:	
Bestellnummer:		Bestellnummer:	
Projekt:		Projekt:	

Ref. Nr.	Sollwert / Tolleranz	Prüfmethode/ -Mittel	IST-Werte Lieferant	IST-Werte Kunde	Bewertung	
					i.O.	n.i.O
1						
2						
3						
4						
5						

Bestätigung Lieferant:	Entscheidung Kunde:	
Bemerkung:	Frei	☐
	Frei mit Auflagen	☐
	Abgelehnt, Nachbemuster erforderlich	☐
	Bemkerung:	
Name:	Name:	
Abteilung:	Abteilung:	
Telefon:	Telefon:	
E-Mail:	E-Mail:	
Datum Unterschrift	Datum Unterschrift	

Appendix D

Requirements overview

Chapter		Requirements	S1	S2	S3	B1	B2	B3
Q-management	1.1	Certification according to ISO 9001	x	x	x	x	x	x
	1.2	Minimum classification level according to EN 15085-2 and guidline DVS 1619-4	CL1	CL1	CL2	-	-	-
	1.2.1	● Certificate entered in the online tab https://en15085.joincert.eu/EN15085/Zertifikate	x	x	x	-	-	-
	1.3	Stadler is authorised to audit the supplier in the area of welding and/or machining.	x	x	x	x	x	x
Q-planing	2.1	Test planning of the welding components and milled parts incl. the type of documentation	x	x [1]	x [1]	x	-	-
	2.2	NDT inspection and test plan for CT1, CT2 and special welds on the drawing incl. type of documentation	x	x [1]	x [1]	-	-	-
	2.3	NDT test instructions	x	x	x	-	-	-
	2.4	Welding procedure qualification report (WPQR) / welding procedure specification (WPS)	x	x	x	-	-	-
	2.5	Qualified welding personal acc. EN 15085	x	x	x	-	-	-
	2.6	Worksample plan and work samples in accordance with EN 15085-4 and leafelet DVS 1621 incl. work sample test report	x [5]	x [5]	x [5]	-	-	-
Subcontracting of weld work	3.1	Written information to Stadler that welding work will be subcontracted.	x [6]	x [6]	x	-	-	-
	3.2	The main supplier must be certified for area of activity "S" and the sub-supplier for area of activity "P" or "M" acc. EN 15085-2	x	x	x	-	-	-
	3.3	Sub-supplier must be audited by main supplier incl. audit report	x	x	x	-	-	-
	3.4	First article inspection (FAI) by the main supplier is required incl. FAI report	x	x	x	-	-	-
Production documentation	4.1	Measurement reports	100%	min 10% [4/7]	x [4]	100%	If required	-
	4.2	NDT evidence	x	x	x	-	-	-
	4.3	Proof of manufacturing and inspection	x	x	x	x	If required	If required
	4.3.1	● Part data	x	x	x	x	x [2]	x [2]
	4.3.2	● Traceability of the components incl. batch number (100%)	x [3]	x [3]	-	-	x [3]	x [3]
	4.3.3	● Welding production record (who welded the part)	x	x	x	-	-	-
	4.3.4	● Part tests incl. verification of inspection criteria	x [4]	x [4/1]	x [4/1]	x [4]	-	-
	4.3.5	● Non conformity report with special approval from Stadler	x	x	x	x	x [2]	x [2]
	4.3.6	● Component release	x	x	x	x	x [2]	x [2]
	4.4	Test evidence of the torque for the screws	-	-	-	x	x	-
Documents to be deliverd to Stadler	5.1	Delivery note	x	x	x	x	x	x
	5.1.1	● Reverence to the 3.1 certificate of the welded or machined component	x	x	x	x	x	-
	5.1.2	● Reverence to the 3.1 certificate of the semi-finished product	-	-	-	-	-	x
	5.2	Measurement reports	100%	min 10% [4/7]	If required	100%	If required	-
	5.3	NDT evidence	x	x	If required	-	-	-
	5.4	Proof of manufacturing and inspection	x	x	If required	x	If required	If required
	5.5	3.1 Inspection certificate for the welded assembly or machined component	x	x	x	x	x	-

Documents to be deliverd to Stadler	5.6	Overview List of the 3.1 inspection certificates of the semi-finished products:	x	x	If required	-	x	x
	5.6.1	● 3.1 inspection certificates for **class A**: Listed for first article inspection (FAI) and during the entire Serie *If a system for the traceability of the 3.1 inspection certificates with the same information as on the list is in place, no list is required.	x	x	-	-	x	x
	5.6.2	● 3.1 inspection certificates for **class B**: Listed for the first article inspection (FAI) *If a system for the traceability of the 3.1 inspection certificates with the same information as on the list is in place, no list is required.	x[8]	x[8]	x[8]	-	x[8]	x[8]
	5.6.3	● 3.1 inspection certificates for **class C**: not necessary	-	-	-	-	-	-
	5.7	All required 3.1 inspection certificates from the overview list in accordance with EN 10204 for the semi-finished products	x	x	If required	-	x	x
	5.8	3.1 / 2.2 certificates in accordance with EN 10204 of the welding filler materials for the fist article inspection (FAI)	x[8]	x[8]	x[8]	-	-	-
	5.9	DB approval of the welding filler material	x[7,8]	x[7,8]	x[7,8]	-	-	-
Traceability	6.1	Traceability of semi-finished products (sheets metal, machined parts, profiles, etc.):	x	x	If required	-	x	x
	6.1.1	● **Requirement class A:** 100 % batch traceability of each profile or sheet metal section of the manufactured components	x	x	-	-	x	x
	6.1.2	● **Requirement class B:** Batch tracebility for each project / order	x	x	If required	-	x	x
	6.1.3	● **Requirement class C:** no tracebility	-	-	-	-	-	-
	6.1.4	● If no requirement class is specified on the bill of material, **requirement class B** applies for traceability	x	x	If required	-	x	x
	6.2	Traceabilitiy of the welding filler material	If required	If required	If required	-	-	-
Labeling	7.1	Individual identification with weather-resistant adhesive label	x	x	x[2]	x	x	x[2]
	7.1.1	● Supplier name / logo	x	x	x	x	x	x
	7.1.2	● Order number and order item	x	x	x	x	x	x
	7.1.3	● Project number	x	x	x	x	x	x
	7.1.4	● Drawing number, index	x	x	x	x	x	x
	7.1.5	● Article number	x	x	x	x	x	x
	7.1.6	● Serial number	x	x[9]	If required	x	-	-
	7.1.7	● Batch number	-	-	-	-	x[3]	x[3]
	7.1.8	● Identification of the parts with 2D data element (2D-Data-Matrix-Code or 2D-QR-Code)	x	x[9]	-	x	x[3]	x[3]
	7.2	Identification per packaging unit with weather-resistant adhesive label (for bulk goods)	-	-	x[2]	-	-	x[2]
	7.2.1	● Supplier name / logo	-	-	x	-	-	x
	7.2.2	● Order number and order item	-	-	x	-	-	x
	7.2.3	● Project number	-	-	x	-	-	x
	7.2.4	● Drawing number, index	-	-	x	-	-	x
	7.2.5	● Article number	-	-	x	-	-	x
Series release	8.1	Internal first article inspection for all dimensions by the supplier (acc. EMPB template in appendix)	x[8]	x[8]	x[8]	x[8]	x[8]	x[8]
	8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises	x[8]	x[8]	x[8]	x[8]	x[8]	x[8]

[1] Defined by responsible welding coordinator (rWC) of the supplier
[2] The supplier has to consolidate Stadler
[3] Only for requirement class A
[4] according to test plan
[5] Min. according EN 15085-4 and DVS leaflet 1621. Stadler's welding coordinator can extend the scope of the work samples.
[6] Stadler is able to object to the subcontracting (right of veto)
[7] Unless otherwise agreed with Stadler
[8] Required for first article
[9] Required for carbody components

Allgemein:
- All inspection certificates for the welded or machined components, raw material and filler material must be archived for at least 30 years.

- All required documents must be sent to the e-mail address defined in the order without being requested to do so.

STADLER

Document no. **AL_6158687**
Index –
State Released
Document type Specification
Number of pages 4

TS-0182-S1 Delivery specification for welded components

S1: Components with high structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	gebmic	28.11.2024	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172901 (TS-0179-02)	04.11.2024	R. Boos, P. Enz	M. Gebel	J. Ruess
a					
b					
c					

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Scope of application

Classification level CL1: Car body, underframe, high-floor plate, middle floor plate, underframe front part, main cross member, beam, baseboard, roof, entrance area roof, cover for vestibule roof, internal longitudinal members, external longitudinal members, end cross member, floor frame, bolster, underframe high-floor area, bogie frame, crash energy absorption frame, articulated cross members, etc.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	All suppliers of welded components must have a valid certificate in accordance with EN 15085-2 and DVS guideline 1619-4 for classification level **CL 1**. The scope of application must correspond to the requirements on the drawing.
1.2.1	The certificate must be listed in the online register JOINCERT - EN15085.
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	The supplier must draw up a test plan for the welded components in accordance with TS-0182-00.
2.2	The supplier must draw up an NDT test plan for the specially tested welds in accordance with TS-0182-00.
2.3	NDT test instructions must be available for each test procedure.
2.4	A welding procedure qualification report (WPQR) and an approved welding procedure specification (WPS) in accordance with the generally applicable standards must be available for each weld seam.
2.5	Only qualified welding and testing personnel in accordance with EN 15085 may be used.
2.6	A work sample plan must be drawn up and the corresponding work samples must be carried out and documented in accordance with TS-0182-00.
2.7	At least the test planning, work sample test plan and the corresponding work sample test reports must be sent to Stadler prior to any FAI.

3 Subcontracting of welding work

Chapter	Requirements
3.1	The responsible purchaser at Stadler must be informed in writing before welding work is subcontracted. Stadler can object to the subcontracting.
3.2	The main supplier must be certified in accordance with EN 15085-2 for subcontracting in the "S" (purchasing and delivery) area of activity and the subcontractor must be certified in accordance with EN 15085-2 for the respective "P" (production) / "M" (maintenance) area of activity.
3.3	The subcontractor must be audited by the main supplier in accordance with TS-0182-00, including audit report.
3.4	The main supplier must execute a first article inspection (FAI) at the sub-supplier's premises, including an FAI report.

4 Production documentation

Chapter	Requirements
4.1	The supplier must create a measurement report for **each part** in accordance with TS-0182-00.
4.2	The NDT test certificates must be documented.
4.3	A production and test certificate must be created in accordance with TS-0182-00.
4.4	-

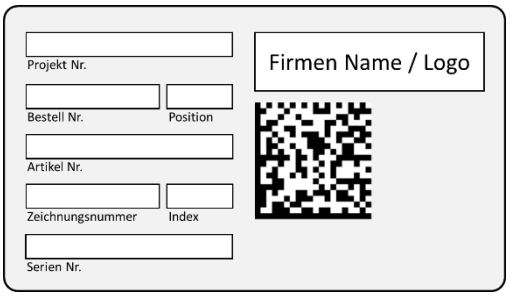
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate of the welded component in accordance with EN 10204 must be created and sent to Stadler.
5.2	The measurement reports must be sent to Stadler.
5.3	The NDT verification documents or the NDT test protocols for CT1 and CT2 and the specified test areas in accordance with the drawing must be sent to Stadler.
5.4	The production and test certificates must be sent to Stadler.
5.5	The 3.1 acceptance test certificates for welded components in accordance with TS-0182-00 must be sent to Stadler.
5.6	An overview list or an extract from a suitable system for the respective 3.1 Acceptance test certificates for the base material of the manufactured assembly in accordance with TS-0182-00 must be sent to Stadler.
5.7	All 3.1 acceptance test certificates from the overview list in accordance with TS-0182-00 must be sent to Stadler.
5.8	All acceptance test certificates in accordance with TS-0182-00 for welding consumables must be available for the first article inspection (FAI).
5.9	Unless otherwise defined in the purchase order, DB safety approval of all filler materials used must be available at the first article inspection (FAI).

6 Traceability

Chapter	Requirements
6.1	The traceability of the semi-finished products must be in accordance with TS-0182-00.
6.2	If specifically required by Stadler, the batch number of the welding consumables used must be traceable for each project.

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Serial number • 2D data element (e.g.: QR code) Coding according to TS-0182-00 & BU_6158698 
7.2	Labelling per packaging unit is not permitted.

8 Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.

STADLER

Document no.	**AL_6158692**
Index	–
State	Released
Document type	Specification
Number of pages	4

TS-0182-S2 Delivery specification for welded components

S2: Components with medium structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	gebmic	28.11.2024	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172903 (TS-0179-04)	04.11.2024	R. Boos, P. Enz	M. Gebel	J. Ruess
a					
b					
c					

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Scope of application

Classification level CL1: General structural assemblies such as add-on parts for the car body, obstacle deflector, crash module, support frames or brackets on and under the roof, toilet consoles and weld-in boxes, support arms in the machinery room, motor frame, underfloor suspensions, side walls, end walls, etc.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	All suppliers of welded components must have a valid certificate in accordance with EN 15085-2 and DVS guideline 1619-4 for classification level **CL 1**. The scope of application must correspond to the requirements on the drawing.
1.2.1	The certificate must be listed in the online register JOINCERT - EN15085.
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	The supplier's vSAP must assess whether an inspection plan is necessary for the welded assembly. Stadler reserves the right to increase the test effort for the first article inspection (FAI) if the test planning does not fulfil the requirements for the part.
2.2	The supplier's vSAP must assess whether NDT test planning is necessary for the specially tested welds in accordance with TS-0182-00.
2.3	NDT test instructions must be available for each test procedure.
2.4	A welding procedure qualification (WPQR) and an approved welding procedure specification (WPS) in accordance with the generally applicable standards must be available for each weld.
2.5	Only qualified welding and testing personnel in accordance with EN 15085 may be used.
2.6	A work sample plan must be drawn up and the corresponding work samples must be carried out and documented in accordance with TS-0182-00.
2.7	At least the test planning, work sample test plan and the corresponding work sample test reports must be sent to Stadler prior to any FAI.

3 Subcontracting of welding work

Chapter	Requirements
3.1	The responsible purchaser at Stadler must be informed in writing before welding work is subcontracted. Stadler can object to the subcontracting.
3.2	The main supplier must be certified in accordance with EN 15085-2 for subcontracting in the "S" (purchasing and delivery) area of activity and the subcontractor must be certified in accordance with EN 15085-2 for the respective "P" (production) / "M" (maintenance) area of activity.
3.3	The subcontractor must be audited by the main supplier in accordance with TS-0182-00, including audit report.
3.4	The main supplier must execute a first article inspection (FAI) at the sub-supplier's premises, including an FAI report.

4 Production documentation

Chapter	Requirements
4.1	Unless otherwise agreed with Stadler, the supplier must prepare a measurement report in accordance with TS-0182-00 for **at least 10% of the parts** and in accordance with the test planning.
4.2	The NDT test certificates must be documented.
4.3	A production and test certificate must be created in accordance with TS-0182-00.

4.4	-

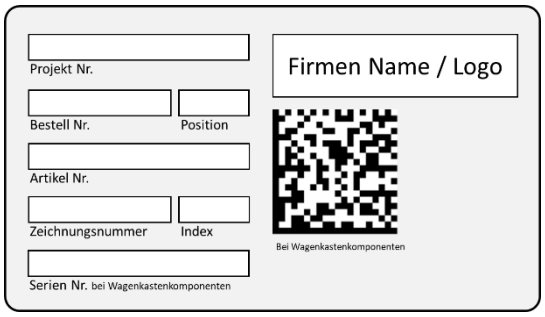
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate of the welded assembly in accordance with EN 10204 must be created and sent to Stadler.
5.2	The required measurement reports must be sent to Stadler.
5.3	The NDT verification documents or the NDT test protocols for CT1 and CT2 and the specified test areas in accordance with the drawing must be sent to Stadler.
5.4	The production and test certificates must be sent to Stadler.
5.5	The 3.1 acceptance test certificates for welded components in accordance with TS-0182-00 must be sent to Stadler.
5.6	An overview list or an extract from a suitable system for the respective 3.1 Acceptance test certificates for the base material of the manufactured assembly in accordance with TS-0182-00 must be sent to Stadler.
5.7	All 3.1 acceptance test certificates from the overview list in accordance with TS-0182-00 must be sent to Stadler.
5.8	All acceptance test certificates in accordance with TS-0182-00 for welding consumables must be available for the first article inspection (FAI).
5.9	Unless otherwise defined in the order, DB safety approval of all filler materials used must be available at the first article inspection (FAI).

6 Traceability

Chapter	Requirements
6.1	The traceability of the semi-finished products must be in accordance with TS-0182-00.
6.2	If specifically required by Stadler, the batch number of the welding consumables used must be traceable for each project.

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Serial number* • 2D data element* (e.g.: QR code) Coding according to TS-0182-00 & BU_6158698 * Required for car body components 
7.2	Labelling per packaging unit is not permitted.

8 Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.

STADLER

Document no. **AL_6158700**
Index –
State Released
Document type Specification
Number of pages 5

TS-0182-S3 Delivery specification for welded components

S3: Components with low structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	gebmic	28.11.2024	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172904 (TS-0179-05)	04.11.2024	R. Boos, P. Enz	M. Gebel	J. Ruess
a					
b					
c					

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Scope of application

Classification level CL2: Assemblies in interior fitting out, electrical cabinet, air ducts, panelling, brackets, seat frames, etc.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	All suppliers of welded components must have a valid certificate in accordance with EN 15085-2 and DVS guideline 1619-4 for classification level **CL 2**. The scope of application must correspond to the requirements on the drawing.
1.2.1	The certificate must be listed in the online register JOINCERT - EN15085.
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	The supplier's vSAP must assess whether an inspection plan is necessary for the welded assembly. Stadler reserves the right to increase the test effort for the first article inspection (FAI) if the test planning does not fulfil the requirements for the part.
2.2	The supplier's vSAP must assess whether NDT test planning is necessary for the specially tested welds in accordance with TS-0182-00.
2.3	NDT test instructions must be available for each test procedure.
2.4	A welding procedure qualification (WPQR) and an approved welding procedure specification (WPS) in accordance with the generally applicable standards must be available for each weld.
2.5	Only qualified welding and testing personnel in accordance with EN 15085 may be used.
2.6	A work sample plan must be drawn up and the corresponding work samples must be carried out and documented in accordance with TS-0182-00.
2.7	At least the test planning, work sample test plan and the corresponding work sample test reports must be sent to Stadler prior to any FAI.

3 Subcontracting of welding work

Chapter	Requirements
3.1	The responsible purchaser at Stadler must be informed in writing before welding work is subcontracted.
3.2	The main supplier must be certified in accordance with EN 15085-2 for subcontracting in the "S" (purchasing and delivery) area of activity and the subcontractor must be certified in accordance with EN 15085-2 for the respective "P" (production) / "M" (maintenance) area of activity.
3.3	The subcontractor must be audited by the main supplier in accordance with TS-0182-00, including audit report.
3.4	The main supplier must execute a first article inspection (FAI) at the sub-supplier's premises, including an FAI report.

4 Production documentation

Chapter	Requirements
4.1	The supplier must create a measurement report for all parts and characteristics defined in the test planning.
4.2	The NDT test certificates must be documented.
4.3	A production and test certificate must be created in accordance with TS-0182-00. Production and test certificate and measurement report can be combined in one document.
4.4	-

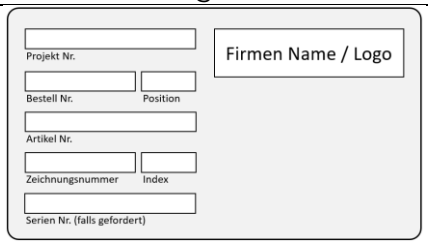
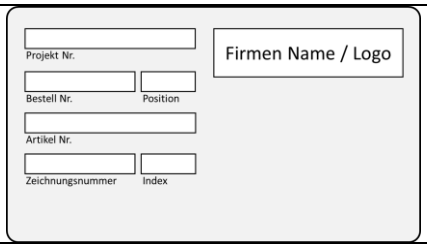
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate of the welded assembly in accordance with EN 10204 must be created and sent to Stadler.
5.2	If measurement reports are required, these must be sent to Stadler.
5.3	If Stadler requires NDT test certificates, these must be sent to Stadler.
5.4	If requested by Stadler, the production and test certificates must be sent to Stadler.
5.5	The 3.1 acceptance test certificates for welded components in accordance with TS-0182-00 must be sent to Stadler.
5.6	If requested by Stadler, an overview list or an extract from a suitable system for the respective 3.1 acceptance test certificates for the base material of the welded assembly in accordance with TS-0182-00 must be sent to Stadler.
5.7	If requested by Stadler, all 3.1 acceptance test certificates from the overview list in accordance with TS-0182-00 must be sent to Stadler.
5.8	All acceptance test certificates in accordance with TS-0182-00 for welding consumables must be available for the first article inspection (FAI).
5.9	Unless otherwise defined in the purchase order, DB safety approval of all filler materials used must be available at the first article inspection (FAI).

6 Traceability

Chapter	Requirements
6.1	If required by Stadler, the traceability of the semi-finished products must be in accordance with TS-0182-00.
6.2	If specifically required by Stadler, the batch number of the welding consumables used must be traceable for each project.

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Serial number (if required) 
7.2	For bulk goods, one label per packaging unit is permitted: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number 

Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.

STADLER

Document no. **AL_6158567**
Index –
State Released
Document type Specification
Number of pages 4

TS-0182-B1 Delivery specification for machined components

B1: Components with high structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	enzpat	29.11.202	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172905 (TS-0179-06)	04.11.2024	R. Boos	P. Enz	J. Ruess
a					
b					
c					

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Scope of application

Mechanically machined large welded assemblies in the car body and bogie: high-floor plate / underframe front part, middle floor plate, front ends / end pieces, main cross members, baseboards, beams and crash energy absorption wall - bent and/or machined, side walls, vestibule roofs, vestibule roof covers, front and rear walls, bogie frames, etc.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	-
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	The supplier must prepare an inspection plan for the characteristics to be inspected for each part in accordance with TS-0182-00. Stadler reserves the right to increase the test scope for the first article inspection (FAI) if the test planning does not fulfil the requirements for the part.
2.2	-
2.3	-
2.4	-
2.5	-
2.6	-
2.7	The test plan must be sent to Stadler prior to any FAI

3 Subcontracting of welding work

Chapter	Requirements
3.1	-
3.2	-
3.3	-
3.4	-

4 Production documentation

Chapter	Requirements
4.1	The supplier must create a measurement report for **each part** in accordance with TS-0182-00.
4.2	-
4.3	A production and test certificate must be created **for each part** in accordance with TS-0182-00. Production and test certificate and measurement report can be combined in one document.
4.4	For assembly parts, the torque of the screws **for each part** must be confirmed in a test report.

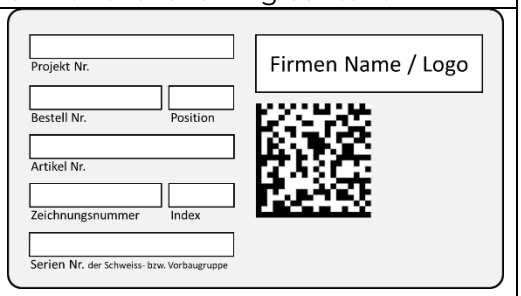
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate in accordance with EN 10204 must be created for the processed assembly and sent to Stadler.
5.2	The measurement reports must be sent to Stadler.
5.3	-
5.4	The production and test certificates must be sent to Stadler.
5.5	The 3.1 acceptance test certificates for machined components in accordance with TS-0182-00 must be sent to Stadler.
5.6	-
5.7	-
5.8	-
5.9	-

6 Traceability

Chapter	Requirements
6.1	-
6.2	-

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Serial number of the pre-assembly* • 2D data element* (e.g.: QR code) Coding according to TS-0182-00 & BU_6158698  * The serial number of the welding or pre-assembly must be transferred to the label of the machined assembly.
7.2	Labelling per packaging unit is not permitted.

8 Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.

STADLER

Document no.	**AL_6158619**
Index	_
State	Released
Document type	Specification
Number of pages	4

TS-0182-B2 Delivery specification for machined components

B2: Components with medium structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	enzpat	29.11.2024	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172906 (TS-0179-07)	04.11.2024	R. Boos	P. Enz	J. Ruess
a					
b					
c					

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Scope of application

Mechanically machined components and welded assemblies: front and rear walls, door portal corners, door portals, hinge mounts, wheelset control arms, yaw damper brackets, transition parts, front panels, window mullions and side wall parts made from solid profiles or sheet material or from cast and forged blanks, machined profiles such as HF/LF longitudinal beams, solebars, underframe front part/underframe center sections, roof straps, etc.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	-
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	-
2.2	-
2.3	-
2.4	-
2.5	-
2.6	-

3 Subcontracting of welding work

Chapter	Requirements
3.1	-
3.2	-
3.3	-
3.4	-

4 Production documentation

Chapter	Requirements
4.1	If required by Stadler, a measurement report must be created in accordance with TS-0182-00.
4.2	-
4.3	If required by Stadler (always required for class A), a production and test certificate must be issued in accordance with TS-0182-00. Production and test certificate and measurement report can be combined in one document.
4.4	For assembly parts, the torque of the screws **for each part** must be confirmed in a test report.

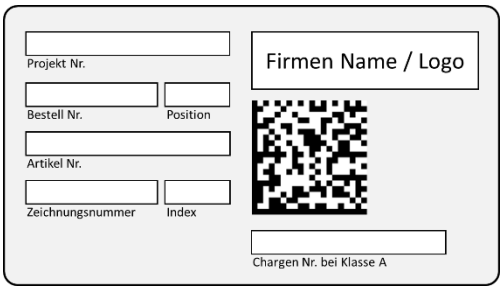
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate in accordance with EN 10204 must be created for the processed assembly and sent to Stadler.
5.2	If measurement reports are required by Stadler, these must be sent to Stadler.
5.3	-
5.4	If Stadler requires production and test certificates, these must be sent to Stadler.
5.5	The 3.1 acceptance test certificates for machined components in accordance with TS-0182-00 must be sent to Stadler.
5.6	An overview list or an extract from a suitable system for the respective 3.1 Acceptance test certificates for the base material of the manufactured assembly in accordance with TS-0182-00 must be sent to Stadler.
5.7	All 3.1 acceptance test certificates from the overview list in accordance with TS-0182-00 must be sent to Stadler.
5.8	-
5.9	-

6 Traceability

Chapter	Requirements
6.1	The traceability of the semi-finished products must be in accordance with TS-0182-00.
6.2	-

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Batch number for class A • 2D data element for class A (e.g.: QR code) Coding according to TS-0182-00 & BU_6158698 
7.2	Labelling per packaging unit is not permitted.

8 Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.

STADLER

Document no.	**AL_6158670**
Index	–
State	Released
Document type	Specification
Number of pages	4

TS-0182-B3 Delivery specification for machined components

B3: Components with low structural relevance

Created (first version)		**Checked** (current index)		**Released** (current index)	
Name	Date	Name	Date	Name	Date
booraf	24.10.2024	enzpat	29.11.2024	rj	02.12.2024

Revision index

Index	Change	Date	Created	Checked	Released
_	New creation on the basis of BU_1172908 (TS-0179-08)	04.11.2024	R. Boos	P. Enz	J. Ruess
a					
b					
c					

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Scope of application

Laser-cut, punched and/or machined and/or folded or rounded sheet metal parts, bent parts, machined parts such as frames for toilet boxes, destination displays, emergency door release handle, sander cover, bogie mounting plate, steel backing plates and steel bushes as well as all profile machining.

1 Quality management

Chapter	Requirements
1.1	All Stadler suppliers must have a valid ISO 9001 certificate.
1.2	-
1.3	Stadler is authorized to audit the supplier in the area of welding and/or machining.

2 Quality planning

Chapter	Requirements
2.1	-
2.2	-
2.3	-
2.4	-
2.5	-
2.6	-

3 Subcontracting of welding work

Chapter	Requirements
3.1	-
3.2	-
3.3	-
3.4	-

4 Production documentation

Chapter	Requirements
4.1	-
4.2	-
4.3	If required by Stadler (always required for class A), a production and test certificate must be issued in accordance with TS-0182-00. Production and test certificate and measurement report can be combined in one document.
4.4	-

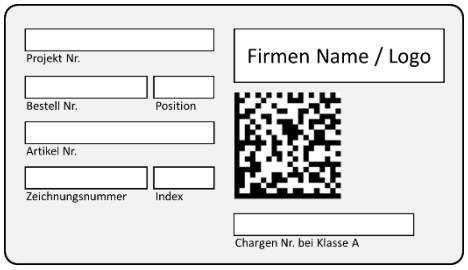
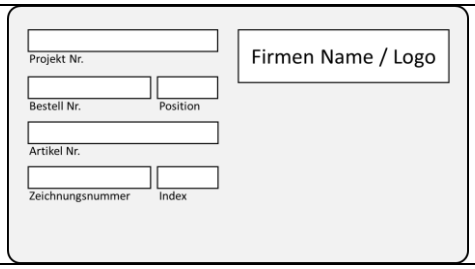
5 Documents to be delivered to Stadler

Chapter	Requirements
5.1	A delivery note with reference to the 3.1 acceptance test certificate of the semi-finished product must be created and sent to Stadler.
5.2	-
5.3	-
5.4	If Stadler requires production and test certificates, these must be sent to Stadler.
5.5	-
5.6	An overview list or an extract from a suitable system for the respective 3.1 Acceptance test certificates for the base material of the manufactured assembly in accordance with TS-0182-00 must be sent to Stadler.
5.7	All 3.1 acceptance test certificates from the overview list in accordance with TS-0182-00 must be sent to Stadler.
5.8	-
5.9	-

6 Traceability

Chapter	Requirements
6.1	The traceability of the semi-finished products must be in accordance with TS-0182-00.
6.2	-

7 Labelling

Chapter	Requirements
7.1	**Each part** requires a weatherproof adhesive label with the following content: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number • Batch number for class A • 2D data element for class A (e.g.: QR code) Coding according to TS-0182-00 & BU_6158698 
7.2	For bulk goods, one labelling per packaging unit is permitted if no traceability is required: • Supplier name / logo • Order number and order item • Project number • Drawing number, Index • Article number 

8 Series release

Chapter	Requirements
8.1	The supplier must execute an internal first article inspection in accordance with TS-0182-00.
8.2	If an external first article inspection (FAI) is required by Stadler, this is preferably carried out at the supplier's premises and is performed in accordance with TS-0182-00.

If applicable, all requirements from TS-0182-00 must be taken into account.