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TS-0179-01 Delivery specification for structural parts and structural assemblies

Part 1: General requirements

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1. Scope of application

The Technical Specification governs the requirements that apply to suppliers and deliveries of welded and machined assemblies, laser cut, edged, bent and machined parts, semi-finished products, weld filler metals, cast and forged parts.

This specification applies for Procurement and suppliers at Stadler Rail AG.

2. Definitions

2.1 Acceptance test certificate 3.1 EN 10204

The Material Test Report according to 3.1 EN 10204 is verification provided by the manufacturer's acceptance body (which is separate to production); this report confirms that the product conforms with the order by providing the results to specific inspections.

A Material Test Report according to 3.1 EN 10204 must be prepared for each delivery and part type or for each delivery lot and batch, depending on the item class.

The properties that require testing and the scope to be verified are defined in sections 4 to 7.

The sample Material Test Report according to 3.1 EN 10204, attached as Appendix A, must be used as a template.

2.2 Declaration of conformity ISO/IEC 17050-1

For welded assemblies that meet EN 15085, the declaration of conformity provided by the responsible welding supervisor (rWS) confirms that the order's requirements regarding the manufacturer/supplier and supply parts are met.

The ISO 17050 declaration of conformity can be integrated into the 3.1 EN 10204 Material Test Report. Stadler's sample 3.1 EN 10204 Material Test Report, which is attached as Appendix B, must be used as a template for a 3.1 EN 10204 Material Test Report with integrated declaration of conformity.

2.3 Test certificate

A test record must be prepared for the most important welded, machined and mounted assemblies and delivered along with the quality documentation.

The test record includes a measurement test report containing the most important dimensions and properties along with any documents to record non-destructive part and weld tests. The surface treatment, adhesive bonds and torque of structural screw connections must be verified for mounted parts.

The supplier is free to select the form that the test record takes, in other words non-destructive tests can be incorporated into the 3.1 EN 10204 Material Test Report or the measurement and test report.

2.4 Inspection and test planning

The inspection and test plan describes the time at which specific inspections are carried out, the scope of each inspection and the resulting forms of documentation.

If necessary, the inspection and test plan can be incorporated into the test record; however, it must be approved by Stadler prior to the start of production.

2.5 First Article Inspection

Suppliers must always perform a first article inspection in order to make sure that the part meets the requirements set out in the drawing or order.

The first article inspection must be carried out and the resulting documentation prepared before any first article acceptance process can be performed.

2.6 First article acceptance

Stadler shall conduct a first piece acceptance test at the supplier's site on agreement or when there are incoming goods at Stadler's site.

Readiness for acceptance must be reported to Stadler at least one week before the delivery date.

3. General provisions

3.1 Outsourcing to sub-suppliers

In the event of outsourcing to sub-contractors, these sub-suppliers must meet the same requirements as the supplier. Stadler must be informed in writing before any work is outsourced to sub-suppliers.

3.2 Purchaser-provided products

Semi-finished products or parts provided by Stadler for processing or further treatment must marked, stored and processed on an order-related basis.

Quality documents and a copy of the delivery note must be sent to the Procurement department's Q office defined in the order for direct shipments by Stadler suppliers.

3.3 Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order.

3.4 Regulations for designs according to DIN 6700

In order to implement production processes that meet EN 15085, the DVS data sheet 1623 is used and applied to parts that were designed, drafted and drawn in accordance with DIN 6700 and that are subject to a grandfather clause.

4. Requirements for welded assemblies

Specifications TS-0179-02 to TS-0179-05 define the requirements for welded assemblies. The following requirements categories apply:

S1	**Large welded assemblies in the vehicle body and bogie** *Certification level CL1: Unfinished car body, underframes, high-floor base/UF front part, medium-floor base/UF middle sections, front part/headstocks, main cross member, baseboard, roof, entrance area roofs, cover for entrance area roofs, intermediate floor, internal longitudinal members, external longitudinal members, end cross member, bogie frame, etc.*	TS–0179–02 BU_1172901 *10110657*
S2	**Welded assemblies on the vehicle body** *Certification level CL1: End and back walls, crash energy absorption frame, crash energy absorption walls, side walls, crash energy absorption boxes on the UF front structures, door portals, roof copings, articulated traverse, add-on parts on the unfinished car body, obstacle deflector, crash energy absorption modules, etc.*	TS–0179–03 BU_1172902 *10110658*
S3	**Welded assemblies with structural relevance** *Certification level CL1: General structural assemblies, e.g. structural frames or brackets on and under the vehicle, WC brackets and the WC cistern, structural assemblies in the machine room, etc.*	TS–0179–04 BU_1172903 *10110660*
S4	**Welded assemblies with subordinate structural importance** *Certification level CL2: Assemblies for interior fitting out, control cabinets,*	TS-0179-05 BU_1172904

Panelling, brackets, chair frames, etc. *10136670*

5. Requirements for machined parts and supply parts

The following requirements categories apply for machined assemblies, laser cut, edged, bent, punched, machined and mounted parts:

B1 **Processing of large welded assemblies** TS–0179–06
High-floor base/UF front parts, medium-floor base, front parts/headstocks, main cross member, baseboard, beam, crash energy absorption wall, side walls, entrance area roofs, cover for entrance area roofs, bogie frame, etc. BU_1172905 *10110662*

B2 **Requirements for the processing of structural Machined parts** TS–0179–07 BU_1172906
End and back walls, door portal corners, door portals, body blocks, wheelset control arm, yaw damper console, transitions, front plates, window posts and side wall parts made out of solid profiles or sheet material or made of cast iron and forging blanks, processed profiles such as HF/LF solebars, solebars for the UF front parts/UF middle sections, roof girders, etc. *10110663*

B3 **Requirements for laser cut, edged, bent, punched and machined parts for structural assemblies** TS–0179–08 BU_1172908
Laser cut, punched and/or machined and/or edged or rounded sheet metal parts, bent parts, machined parts such as the frame for the WC cistern, destination displays, emergency door release, sander cover, bogie mounting plates, steel shim plates and steel bushes. *10110664*

6. Requirements for pressure vessels in railway vehicle construction

The standards EN 286-3 and -4 apply when welding pressure vessels

7. Requirements for semi-finished products

The term "semi-finished products" covers:

- Steel and aluminium plates for structural and non-structural applications
- Pipes, rods and flat products made of steel
- Aluminium pipes and profiles for general application (FLUTZI) and welding backing layers
- Aluminium profiles for structural applications (special profiles)

In accordance with the following table, a 3.1 EN 10204 Material Test Report must be supplied for each product and batch for semi-finished products.

<table>
<tr><th colspan="2">Semi-finished product</th><th>Assembly</th><th>Certificate</th></tr>
<tr><td rowspan="4">Aluminium</td><td>Sheet metals requirements class A/B
(Specification AL_2075148)</td><td rowspan="5">CL1 assembly

Or/and

CL 2 assemblies as per EN 15380-2

BA, BB, BC, BD, BE, BF, BG,
EA, EB, EC, ED, EE, EF, EG,
CD, CF,
DB, DC, DE, DF</td><td rowspan="3">3.1 EN 10204 Material Test Reports</td></tr>
<tr><td>Sheet metals requirements class C
(Specification AL_2075148)</td></tr>
<tr><td>Profiles requirements class A/B
(Specification BU_1155438)</td></tr>
<tr><td>Profiles in requirements category C
(Specification BU_1155438)</td><td>Inspection certificate 3.1 or factory certificate 2.2 EN 10204</td></tr>
<tr><td rowspan="2">Steel</td><td>Sheet-metal panels</td><td rowspan="2">3.1 EN 10204 Material Test Reports</td></tr>
<tr><td>Profiles</td></tr>
</table>

Material Test Reports are not required for semi-finished products for assemblies not listed in the table. **However, this does not waive the requirement to make sure that the ordered material is installed and delivered without any mix-ups.**

- The 3.1 Material Test Reports for semi-finished products must contain the following information as a minimum requirement (see also sections 7.1 and 7.2):
  - Manufacturer / Supplier
  - References to the order and order position
  - Material, condition, dimensions
  - Quantity
  - Batch no.
  - Chemical analysis
  - Mechanical strength values
  - Confirmation that the material meets the relevant standard

  See sections 7.1 and 7.2 for a list of the properties that must be verified in the 3.1 EN 10204 Material Test Report.
- Material certificates must be archived for at least 10 years to ensure the traceability of the order.
- Identification of semi-finished products:
  - Semi-finished products are to be labelled individually or on each packing unit as follows for unambiguous identification:
    - Material, condition (EN standard designation)
    - Batch (only for material deliveries with a 3.1 Material Test Report)
- Material deliveries:

  Unless specified separately for a particular order, the following requirements apply to deliveries of semi-finished products:

- Semi-finished products must be delivered in separate batches as easy-to-transport and clearly labelled units.
- The following requirements apply concerning the surface quality:
  - Steel parts:
    - Free of rust and scale
  - Rustproof steel parts:
    - Free of scratches
  - Aluminium:
    - Clean and dry
    - Free of scratches and oils
  - Cut quality
    - The surface of cut edges corresponds to EN 9013, class 2
- Marking of purchased parts:
  - Order number with order position
  - ID number (Stadler article number)
  - Designation, material, dimensions, condition
  - Supplier

- Documents to be provided if a 3.1 EN 10204 Material Test Report is required:
  - Delivery note with a reference to the Material Test Reports
  - 3.1 EN 10204 Material Test Reports

7.1 Requirements for steel semi-finished products

Specific Stadler specifications apply for bogie and vehicle body applications:

- Flat steel:
  - EN10025-2: S355J2 +N AL_1250051
  - EN10028-3: P355 NL1 AL_1373625
  - EN10028-3: P355 NL2 AL_1363448
  - EN 10028-3: P460NL1 AL_1373626
  - EN 10028-3: P460NL2 AL_1373627
  - EN 10025-3: S460NL BU_1724425
  - EN 10025-6 S690QL1 PR_1359984
  - EN 10025-6 S690QL BU_1563178
  -
- Pipes:
  - EN 10210 S355NH AL_2066379
  - EN 10216-3 P355NL1 AL_2063617
  - EN 10216-3 P355NL2 AL_2043156
  - EN 10210 S355NLH AL_2062022
  - EN 10305-1 E355+N AL_2041766
- Round steel:
  - EN 10025-3 S355NL AL_2060405
  - EN 10025-3 S460NL AL_2063282
  -

General steel semi-finished products must meet the following standards:

- EN 10149 Hot rolled flat products made of high yield strength steels for cold forming

- EN 10268 Cold rolled steel flat products with high yield strength for cold forming with micro-alloyed steel grades
- EN 10130 Cold-rolled low carbon steel flat products for cold forming
- EN 10219 Cold-formed welded structural hollow sections of non-alloy and fine grain steels
- EN 10210 Hot-rolled structural hollow sections of non-alloy and fine grain 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, sections and bright products of corrosion resisting steels for general purposes
- EN 10296 Welded circular steel pipes for mechanical and general engineering purposes, technical delivery conditions
  Part 1: Non-alloy and alloy steel pipes
  Part 2: Stainless steels
- EN 10297 Seamless circular steel pipes for mechanical and general engineering purposes, technical delivery conditions
  Part 1: Non-alloy and alloy steel pipes
  Part 2: Stainless steel pipes
- EN 10217 Welded steel tubes for pressure purposes, technical delivery conditions
  Part 1: Non-alloy steel tubes with specified properties
  Part 7: Stainless steel tubes
- EN 10305 Steel pipes for precision applications, 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 tubes for hydraulic and pneumatic power systems
  Part 5: Welded cold sized square and rectangular pipes
- TS-00008 Pneumatic piping and screw connections

- The Cu content must not exceed the maximum value of 0.45%.
- The following properties must be verified in the 3.1 EN 10204 Material Test Report:
  - Chemical analysis
  - Carbon equivalent
  - Elongation/tensile yield point: $R_{p0.2}$ / R_{eH}
  - Tensile strength: Rm
  - Elongation at rupture: A5
  - Z grade (only if requested specifically in the order)

7.2 Requirements for aluminium semi-finished products

- Aluminium semi-finished products must comply with the following standards:
  - EN 13981 Aluminium and aluminium alloys -
    Products for structural railway applications
    Part 1: Extruded products
    Part 2: Plates and sheets

- EN 573 Aluminium and aluminium alloys -
  Chemical composition and form of wrought products
  Part 3: Chemical composition and form of products
- EN 485 Aluminium and aluminium alloys -
  Sheet, strip and plate
  Part 1: Technical delivery conditions
  Part 2: Mechanical properties
  Part 3: Dimensions and tolerances on shape
  Part 4: Dimensions and tolerances on shape
- EN 755 Aluminium and aluminium alloys -
  Extruded rod/bar, pipe and profiles
  Part 1: Technical delivery conditions
  Part 2: Mechanical properties
  Part 3: Round bars, tolerances on dimensions and form
  Part 4: Square bars, tolerances on dimensions and form
  Part 5: Rectangular bars, tolerances on dimensions and form
  Part 6: Hexagonal bars, tolerances on dimensions and form
  Part 7: Seamless pipes, tolerances on dimensions and form
  Part 8: Porthole pipes, tolerances on dimensions and form
  Part 9: Profiles, tolerances on dimensions and form

- The following properties must be verified in the 3.1 EN 10204 Material Test Report:
  - Chemical analysis in accordance with EN 573-3
  - Elongation limit: Rp0.2
  - Tensile strength: Rm
  - Elongation at rupture: A5

8. Requirements for weld filler metals

- Weld filler metals must comply with the following standards:
  - ISO 18273 Welding consumables – Wire electrodes, wires and rods for 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 resisting steels – Classification
  - ISO 14341 Welding consumables – Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels – Classification
  - ISO 636 Welding fillers - Rods, wires and weld deposits for Wolfram-Inert-Gas welding of non-alloy and fine grain steels - categorisation
- Weld filler metals must be procured with a 2.2 EN 10204 inspection certificate, DB approval and CE mark on the smallest possible package at the very least.
- Certificates must be archived for at least 10 years.

9. Requirements for forged and cast parts

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

10. Requirements for special structural profiles

Requirements for special structural profiles are defined in the specification "Aluminum profiles for structural applications" (BU_1155438).

Appendix A Sample Material Test Report according to 3.1 EN 10204

Abnahmeprüfzeugnis 3.1 / Protokoll nach EN 10204

Inspection + Certificate. acc. to EN 10204

Besteller: Purchaser *STADLER BUSSNANG AG* *Industriestrasse 4* *CH - 9565 Bussnang*	Lieferant: Supplier *Stadler Winterthur AG* *CH - 8410 Winterthur*
Vertrags-/Bestell-Nr.: Contract-/Order-No. *193216 Satz 2*	Werkauftrags-Nr.: Works order-No. *STAWI - pro- α 9955*
Vertrags-/Prüfgegenstand: Object of contact and inspection *Motordrehgestell, Flirt NSB, Short Regional, MDG 4*	Lfd.-Nr. *64-005*
Artikel-/Zeichnungs-Nr.: Drawing-No. *12015616 / BU_1314340*	Prüfplan: Inspection plan
Änderungsstand: Release *Version 002 / Index A*	Lieferschein: Delivery note *LS 614011 Pos.7.0*

Hinweise /Prüfergebnisse:
Directions/Checkresultats

Prüfungen gemäss Prüfplan /Technische Lieferbedingungen durchgeführt.
Anforderungen sind erfüllt.
Prüfergebnisse sind durch folgende Messblätter, Prüfprotokolle usw. belegt und Bestandteil dieses Abnahmeprüfzeugnisses /-protokolls.

- *Komponentenliste* *BU_1436156*
- *Prüfprotokoll* *BU_1435337*
- *inkl. Radlastmessblatt* *BU_1435337*
- *Montageprotokoll* *BU_1339973*
- *3.1 Abnahmeprüfzeugnis Radsätze*
- *Mass- und Farbprotokolle zu DG-Rahmen, Traverse*

Materialzeugnisse und Dokumentation der zerstörungsfreien Prüfungen werden intern rückverfolgbar abgelegt und archiviert. Eine Überprüfung der Dokumente durch den Besteller ist während 10 Jahren zu jeder Zeit möglich.

vSAP / Qualitätssicherung	**Datum** Date	**Werksachverständiger** Supplier	**Datum** Date
Unterschift	*Datum*		

Appendix B Sample Material Test Report according to 3.1 EN 10204 including a declaration of conformity

Abnahmeprüfzeugnis 3.1 / Protokoll nach EN 10204

Inspection + Certificate. acc. to EN 10204

Besteller: Purchaser **STADLER BUSSNANG AG** **Industriestrasse 4** **CH - 9565 Bussnang**	Lieferant: Supplier
Vertrags-/Bestell-Nr.: Contract-/Order-No.	Werkauftrags-Nr.: Works order-No.
Vertrags-/Prüfgegenstand: Object of contact and inspection	Lfd.-Nr.
Zeichnungs-Nr.: Drawing-No.	Prüfplan: Inspection plan
Änderungsstand: Release	Lieferschein: Delivery note

Hinweise /Prüfergebnisse:
Directions/Checkresulats

Prüfungen gemäss Prüfplan /Technische Lieferbedingungen durchgeführt.
Anforderungen sind erfüllt.
Prüfergebnisse sind durch folgende Messblätter, Prüfprotokolle usw. belegt und Bestandteil dieses Abnahmeprüfzeugnisses /-protokolls. >> *Zum Beispiel:*

1. *Materialprüfzeugnisse (3.1 nach EN 10204)*
2. *Fertigungs- u. Prüfnachweise*
3. *Protokolle und Dokumentation der ZfP*

Konformitätserklärung nach ISO / ICE 17050-1:

supplier`s declaration of conformity

Es wird aufgrund von Ergebnissen aus Prüfungen an der Lieferung selbst bestätigt, dass die angeführten Gegenstände den Vereinbarungen der Bestellung entsprechen. (Ausnahme s. Hinweis).
Eine Überprüfung der Dokumente durch den Besteller ist während 10 Jahren zu jeder Zeit möglich.

Weiterhin ist das oben genannte Produkt konform mit den Anforderungen der EN 15085 Teil 1 bis 5, sowie mitgeltenden Normen und entspricht dem aktuellen Stand der Technik.

Hinweise (Ausnahmen) :

vSAP / Qualitätssicherung	**Datum** Date	**Werksachverständiger** Supplier	**Datum** Date
_____	_____	_____	_____

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TS-0179-02 Delivery specification for structural parts and structural assemblies

Part 2: Requirements for large welded assemblies in the car body and bogie

Index	Change	Date	Created	Checked	Released
a	Revision	22.11.2010	Björn Berbig	Guido Oesch	Micha Bröcker
b	"Marking of purchased parts" removed	24.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Oesch	J. Ruess
c	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess
d	Changes specified	21.09.2016	Daniel Löffel	M. Bröcker	M. Bröcker

e	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-02 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

Structural assemblies with certification level CL1, such as the unfinished car body, underframes, high floor base, middle floor base, UF front part, main cross member, baseboard, roof, internal longitudinal member, external longitudinal member, end cross member, bogie frame, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- Certification in accordance with EN 15085-2 must correspond to the weld seam classes and the part class.
- The supplier must be approved by Stadler's welding supervisor.
- An inspection and test plan must be prepared prior to the start of production for testing welds, part geometry and other inspection criteria. The inspection and test plan must be approved by the responsible welding supervisor at Stadler.
- A measurement and test report must be prepared for each part as a form of test record. The properties to be tested and documented must be agreed with Stadler prior to the start of production.
- The supplier must perform a first piece acceptance test prior to first article inspection (FAI). This includes inspection and documentation of all masses and characteristics, documentation of the non-destructive tests and documentation of the production and test certificate for series parts.
- Stadler conducts the first article acceptance at the supplier's site. The acceptance meeting must be arranged with Stadler at least one week in advance.

  At the very least, the following documents must be submitted for the first piece acceptance test:
  - Document recording the first article inspection conducted by the supplier
  - Acceptance in accordance with EN 15085-2, procedure and welder certification
  - Test record or measurement and test report
  - WPS and production tests
  - Material Test Reports according to 3.1 EN 10204 for semi-finished products
  - Test reports for filler metals according to 2.2 EN 10204

2.2 Semi-finished products

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Inspection certificate of the supply parts

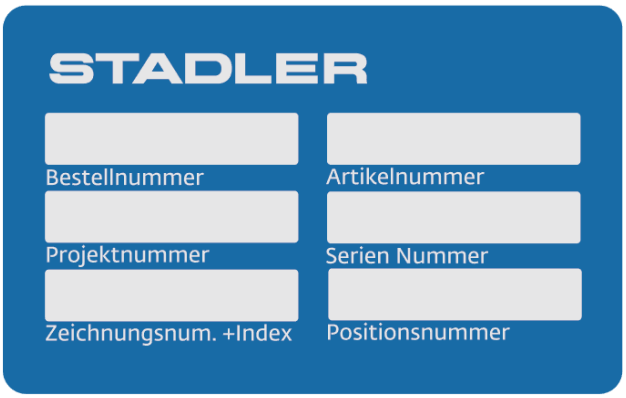
- A Material Test Report according to 3.1 EN 10204 must be prepared for supply parts, covering the following information:
  - Reference to delivery note
  - Reference to project number
  - References to the order and order position
  - Reference to article number and drawing number, incl. index
  - Reference to serial number
  - References to production and test certificates
  - References to reports and documentation from non-destructive tests
  - Reference to Inspection certificate according to 3.1 EN 10204 for semi-finished products
  - Declaration of conformity:
    Based on the results from the inspections, the delivery itself contains confirmation that the listed items correspond to the agreements for the order.The buyer can review the documents at any time during a period of 10 years. Furthermore, the product listed above conforms with the requirements in statutory provisions and the standard EN 15085, as well as with all applicable standards and the current state of the art.

Stadler's sample Material Test Report according to 3.1 EN 10204, attached to TS-0179-01 as Appendix B, must be used as a template.

2.4 Labelling of the parts

- For traceability purposes, the parts must be marked individually with a part plate as follows:
  - Order number, order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Part serial number
  - Supplier
- The drawing contains an equivalent note if the part plate has to be welded to the assembly as a plate.
- Unless noted on the drawing, the parts plate must be positioned in a clearly visible position as a weatherproof adhesive label after consultation with Stadler.

Example of an adhesive label



2.5 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. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
    - Steel parts:
        - Free of rust and scale
        - All weld seam preparations must be metallically bare and clean
    - Rustproof steel parts:
        - Free of tempering colours and scale
    - Aluminium:
        - Clean and dry
        - Free of oils and any cooling water residues from any machining work

2.6 Documentation to be supplied

- Delivery note with a reference to the Inspection Certificate according to 3.1 EN 10204
- Inspection certificate 3.1 EN 10204 with references in accordance with chapter 2.3 and integrated declaration of conformity ISO/IEC 17050-1
- Material Test Report for the semi-finished product according to 3.1 EN 10204 (if it has not already been provided)
- Test record or measurement and test report

  All material inspection certificates for weld filler materials remain with the supplier but must be archived for at least 10 years in a traceable manner.

2.7 Improvements/changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

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TS-0179-03 Delivery specification for structural parts and structural assemblies

Part 3: Requirements for welded assemblies on the car body

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c	"Marking of purchased parts" removed	24.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Oesch	J. Ruess
d	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess

e	Changes specified	21.09.2016	Daniel Löffel	M. Bröcker	M. Bröcker
f	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-03 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

Structural assemblies with certification level CL1, such as end and back walls, side walls, crash energy absorption frame, articulated traverse, add-on parts on the unfinished car body, obstacle deflector, crash energy absorption module, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- Certification in accordance with EN 15085-2 must correspond to the weld seam classes and the part class.
- The supplier must be approved by Stadler's welding supervisor.
- A measurement and test report must be prepared for each part as a form of test record, following liaison with Stadler. The properties to be tested and documented must be agreed with Stadler prior to the start of production.
- The supplier must perform a first piece acceptance test prior to first article inspection (FAI). This includes inspection and documentation of all masses and characteristics, documentation of the non-destructive test and of the production and test certificate for series parts.
- Stadler shall conduct a first piece acceptance test at the supplier's site on agreement or when there are incoming goods at Stadler's site. Readiness for acceptance must be reported to Stadler at least one week before the delivery date.

  At the very least, the following documents must be submitted for the first piece acceptance test:
  - Document recording the first article inspection conducted by the supplier
  - Acceptance in accordance with EN 15085-2, procedure and welder certification
  - Test record or measurement and test report, where required
  - Welding process specifications and production weld tests
  - Material Test Reports according to 3.1 EN 10204 for semi-finished products
  - Test reports for filler metals according to 2.2 EN 10204

  If the first piece acceptance test does not take place at the supplier's site, the documents listed above must be supplied with the initial delivery, along with the delivery documents.

2.2 Semi-finished products

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Inspection certificate of the supply parts

- A Material Test Report according to 3.1 EN 10204 must be prepared for supply parts, covering the following information:
  - Reference to delivery note
  - Reference to project number
  - References to the order and order position
  - Reference to article number and drawing number, incl. index
  - Reference to serial number
  - References to production and test certificates (where required)
  - References to reports and documentation from non-destructive tests

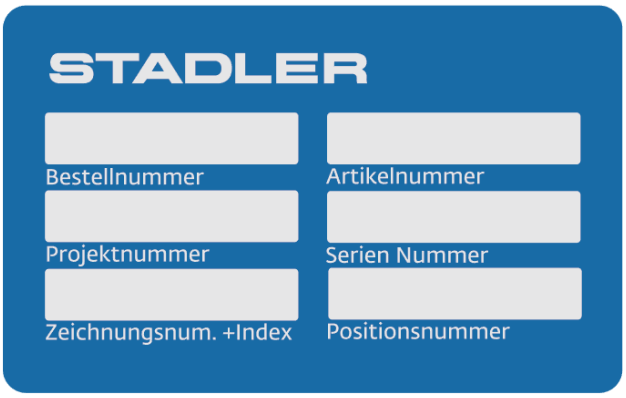
- Reference to Inspection Certificate 3.1 EN 10204 for semi-finished products
- Declaration of conformity:
  Based on the results from the inspections, the delivery itself contains confirmation that the listed items correspond to the agreements for the order.The buyer can review the documents at any time during a period of 10 years. Furthermore, the product listed above conforms with the requirements in statutory provisions and the standard EN 15085, as well as with all applicable standards and the current state of the art.

Stadler's sample Material Test Report according to 3.1 EN 10204, attached to TS-0179-01 as Appendix B, must be used as a template.

2.4 Labelling of the parts

- For traceability purposes, the parts must be marked individually with a label or stamp as follows:
  - Order number, order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Serial parts number
  - Supplier
- To identify the part, a weatherproof adhesive label must be positioned in a clearly visible position.

Example of an adhesive label



2.5 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. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Steel parts:
    - Free of rust and scale
    - All weld seam preparations must be metallically bare and clean
  - Rustproof steel parts:
    - Free of tempering colours and scale

- Aluminium:
  - Clean and dry
  - Free of oils and any cooling water residues from any machining work

2.6 Documentation to be supplied

- Delivery note with a reference to the Inspection Certificate according to 3.1 EN 10204
- Inspection certificate 3.1 EN 10204 with references in accordance with chapter 2.3 and integrated declaration of conformity ISO/IEC 17050-1.
- Material Test Report for the semi-finished product according to 3.1 EN 10204 (if the material has not already been provided)
- Test record or measurement and test report (where relevant)

All material inspection certificates for weld filler materials remain with the supplier but must be archived for at least 10 years in a traceable manner.

2.7 Improvements/changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

STADLER

Article no. **10110660**
Document No. **BU_1172903 e**
Status Released
Document type Specification
Number of pages 3

TS-0179-04 Delivery specification for structural parts and structural assemblies

Part 4: Requirements for welded assemblies with structural relevance

Index	Change	Date	Created	Checked	Released
a	Revision	22.11.2010	Björn Berbig	Guido Oesch	Micha Bröcker
b	"Marking of purchased parts" removed	24.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Oesch	J. Ruess
c	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess

d	Labeling added	21.09.2016	D. Löffel	M. Bröcker	M. Bröcker
e	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-04 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

General structural assemblies of certification level CL1, e.g. structural frames or brackets on and under the vehicle, WC brackets and WC cistern, structural assemblies in the machine room, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- Certification in accordance with EN 15085-2 must correspond to the weld seam classes and the part class.
- The supplier must be approved by Stadler's welding supervisor.
- The supplier must perform a first article inspection prior to a first piece acceptance test. This includes checking and documenting all dimensions and properties plus the non-destructive test (if relevant).
- Stadler shall conduct the first piece acceptance test at the supplier's site on agreement or when there are incoming goods at Stadler's site. Readiness for acceptance must be reported to Stadler at least one week before the delivery date.

  At the very least, the following documents must be submitted for the first piece acceptance test:
  - Document recording the first article inspection conducted by the supplier
  - Acceptance in accordance with EN 15085-2, procedure and welder certification
  - WPS and production tests
  - Material Test Reports according to 3.1 EN 10204 for semi-finished products
  - Test reports for filler metals according to 2.2 EN 10204

  If the first piece acceptance test does not take place at the supplier's site, the documents listed above must be supplied with the initial delivery, along with the delivery documents.

2.2 Semi-finished products

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Declaration of conformity of supply parts

- Declaration of conformity:
  Based on the results from the inspections, the delivery itself contains confirmation that the listed items correspond to the agreements for the order.The buyer can review the documents at any time during a period of 10 years. Furthermore, the product listed above conforms with the requirements in statutory provisions and the standard EN 15085, as well as with all applicable standards and the current state of the art.

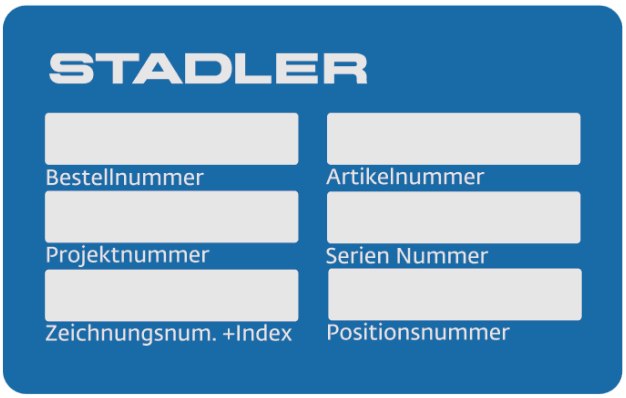
2.4 Labelling of the parts

- For traceability purposes, the parts must be marked individually with a part plate as follows:
  - Order number, order item
  - Project number

- Article number
- Drawing number/heading, index
- Serial parts number (if required)
- Supplier

- To identify the part, a weatherproof adhesive label must be positioned in a clearly visible position.

Example of an adhesive label



2.5 Parts delivery

- The parts are to be delivered in inspected and cleaned condition, neatly packed and clearly labelled
- If possible, the parts are to be delivered on EURO pallets. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Steel parts:
    - Free of rust and scale
    - All weld seam preparations must be metallically bare and clean
  - Rustproof steel parts:
    - Free of tempering colours and scale
  - Aluminium:
    - Clean and dry
    - Free of oils and any cooling water residues from any machining work

2.6 Documentation to be supplied:

- Delivery note with reference to the lists in chapter 2.4
- Declaration of conformity according to ISO 17050-1 (see example in TS-0179-01 Appendix B)

All material inspection certificates for semi-finished products and weld filler materials remain with the supplier but must be archived for at least 10 years in a traceable manner.

2.7 Improvements/changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

STADLER

Article no. **10136670**
Document no. **BU_1172904 d**
Status Under revision
Document type Specification
Number of pages 3

TS-0179-05 Delivery specification for structural parts and structural assemblies

Part 5: Requirements for welded assemblies with secondary structural relevance

Index	Change	Date	Created	Checked	Released
_	First edition	25.09.2007	Guido Oesch	Björn Berbig	Micha Bröcker
a	Revision	22.08.2008	Micha Bröcker	Björn Berbig	Guido Oesch
b	Revision	19.02.2016	Mario Knechtle	Micha Bröcker	Jürgen Ruess
c	Stadler logo updated	17.05.2019	Ivan Burazin	Micha Bröcker	Björn Berbig
d	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-05 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

Certification level CL2, e.g. assemblies in the interior fitting out, control cabinets, air ducts, panelling, brackets, seat frames, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- The supplier must be certified at least in accordance with EN 15085-2 level CL2.
- The supplier must be approved by Stadler's welding supervisor.
- The supplier must perform a first article inspection. This includes checking and documenting all dimensions and properties.

2.2 Semi-finished products

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Declaration of conformity of supply parts

- Declaration of conformity on delivery note

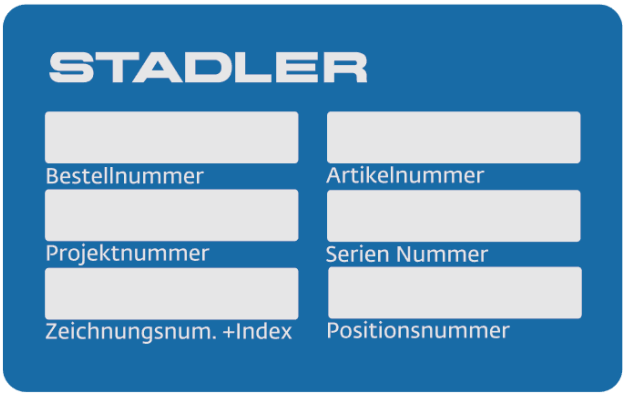
Declaration of conformity in accordance with ISO/IEC 17050-1:
Due to the final and visual inspections, the delivery itself contains confirmation that the items listed above correspond to the agreements for the order. Furthermore, the product listed above conforms with the requirements in statutory provisions and the standard EN 15085, as well as with all applicable standards and the current state of the art.
rWS / Quality Assurance _____ Date _____

2.4 Labelling of the parts

- The parts are to be labelled individually or on each packing unit as follows for unambiguous identification:
  - Order number, order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Supplier

- To identify the part, a weatherproof adhesive label must be positioned in a clearly visible position.

Example of an adhesive label



2.5 Parts delivery

- The parts are to be delivered in inspected, deburred and cleaned condition, neatly packed and clearly labelled

- If possible, the parts are to be delivered on EURO pallets. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Steel parts:
    - Free of rust and scale
    - All weld seam preparations must be metallically bare and clean
  - Rustproof steel parts:
    - Free of tempering colours and scale
  - Aluminium:
    - Clean, deburred and dry
    - Free of oils and any cooling water residues from any machining work

2.6 Documentation to be supplied

- Delivery note with integrated or separate declaration of conformity in accordance with ISO/IEC 17050-01 (refer to example in TS-0179-01 Appendix B)
- Documents recording the first article inspection must be presented to Stadler on request

All material inspection certificates for semi-finished products and weld filler materials remain with the supplier. Suppliers are recommended to archive these documents in a traceable manner for at least 10 years.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

STADLER

Article no. **10110662**
Document No. **BU_1172905 e**
Status Released
Document type Specification
Number of pages 10

TS-0179-06 Delivery specification for structural parts and structural assemblies

Part 6: Requirements for the processing of large welded assemblies

Index	Change	Date	Created	Checked	Released
_	First edition	25.09.2007	Guido Oesch	Björn Berbig	Micha Bröcker
a	Revision	22.08.2008	Micha Bröcker	Björn Berbig	Guido Oesch
b	Revision	21.07.2011	Guido Oesch	Björn Berbig	Micha Bröcker
c	Revision	24.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Ruess	J. Ruess

d	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess
e	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-06 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

High floor base / front structures for underframe, middle floor base, front structures / headstocks, main cross member, floor end piece, girder-built underframe and crash wall, bent and/or machined, side walls, vestibule roofs, cover plate for vestibule roofs, end and back walls, bogie frame, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- The supplier must be approved by Stadler Quality Control.
- A test record or measurement and test report must be prepared for every part.The properties to be tested and documented must be agreed with Stadler.
- The torques for screws used in mounted parts must be confirmed in the inspection report.
- The supplier must perform a first piece acceptance test prior to first article inspection (FAI). This includes inspection and documentation of all masses and characteristics as well as the production and test certificate for series parts.
- Stadler shall conduct the first piece acceptance test at the supplier's site on agreement or when there are incoming goods at Stadler's site. Readiness for acceptance must be reported to Stadler at least one week before the delivery date.

  At the very least, the following documents must be submitted for the first piece acceptance test:
  - Document recording the first article inspection conducted by the supplier
  - Test record or measurement and test report
  - Material Test Reports according to 3.1 EN 10204 for semi-finished products

  If the first piece acceptance test does not take place at the supplier's site, the documents listed above must be supplied with the initial delivery, along with the delivery documents.

2.2 Semi-finished products

- The semi-finished products must be procured in accordance with the requirements of TS-0179-01

2.3 Inspection certificate of the supply parts

- A Material Test Report according to 3.1 EN 10204 must be prepared for supply parts, covering the following information:
  - Reference to delivery note
  - Reference to project number
  - References to the order and order position
  - Reference to article number and drawing number, incl. index
  - Reference to serial number
  - References to the production and test certificates or measurement reports

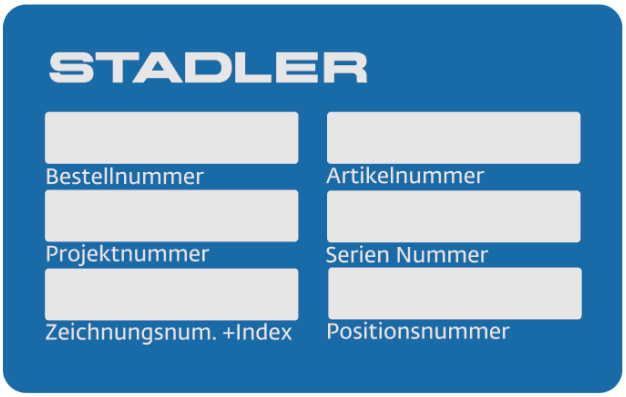
- Reference to Inspection certificate according to 3.1 EN 10204 for semi-finished products

The sample Inspection certificate 3.1 EN 10204, attached to TS-0179-01 as Appendix A, must be used as a template.

2.4 Labelling of parts

- For traceability purposes, the parts must be marked individually with a parts plate as follows:
  - Order number, order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Serial parts number
  - Supplier
- Unless noted on the drawing, the parts plate must be positioned in a clearly visible position as a weatherproof adhesive label after consultation with Stadler.

Example of an adhesive label



2.5 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. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Clean and dry
  - Free of shavings, oils and any cooling water residues
  - Machined functional surfaces (fits) on steel parts must be protected against corrosion

2.6 Documentation to be supplied:

- Delivery note with a reference to the Inspection Certificate according to 3.1 EN 10204
- Inspection certificate 3.1 EN 10204 with references in accordance with chapter 2.3
- Material Test Report for the semi-finished product according to 3.1 EN 10204 (if it has not already been provided)
- Production and test records, measurement and test certificates

All material inspection certificates for semi-finished products remain with the supplier but must be archived for at least 10 years in a traceable manner.

2.7 Improvements/changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

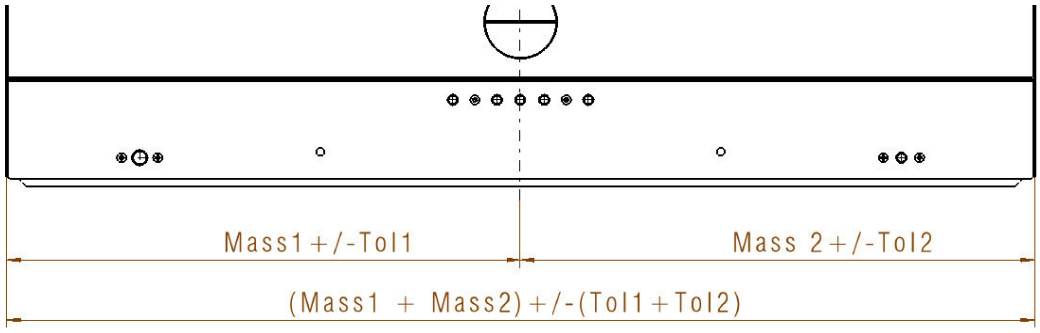
4. Inspections for machined assemblies

The following section defines the parameters that must be checked for parts to be delivered. Unless otherwise specified, inspections are carried out on every part. The results are documented.

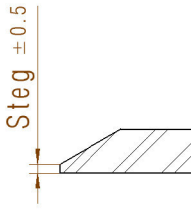
4.1 Requirements

In general, please refer to the drawings for the tolerances for each inspection criterion. The following additional rules apply:

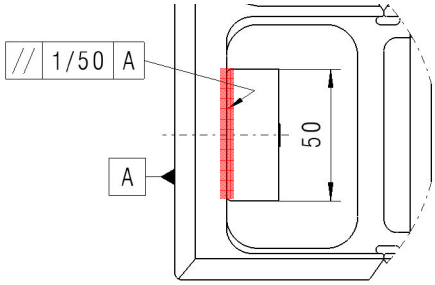
- Lengths measured symmetrically: The test dimension is the total of both measurements. The tolerance can also be added.



- Welding bevels: The drawing often does not contain specific tolerances for welding bevels. The tolerance for the welding bevel root face is +/-0.5mm.



- Tolerance for the parallelism of steel backing layers:



4.2 Documentation

Measurements are documented in an inspection report. Where necessary, the results for several parts can be summarized in one document. This report can be used as a basis for creating the 3.1 Material Test Report. This document must contain a reference to the inspection report (report number).

4.3 Inspection criteria

The inspection criteria are provided as an example for each part type. If necessary, they may have to be adjusted if the design differs slightly.

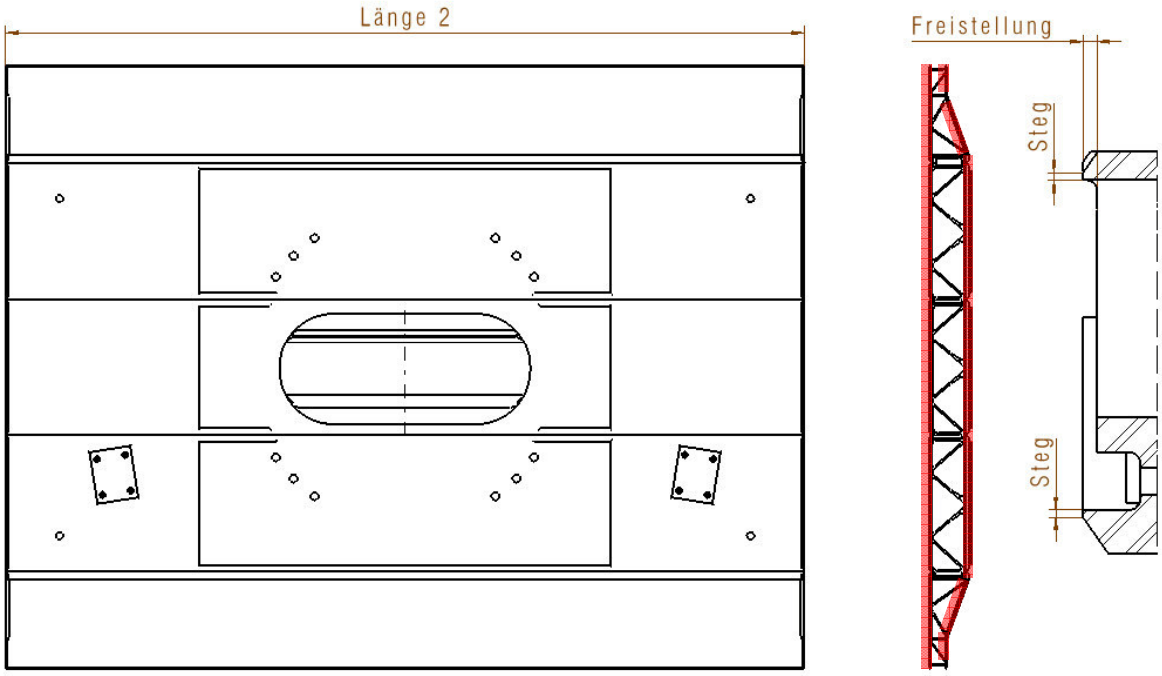
4.3.1 MF underframe (MF base)

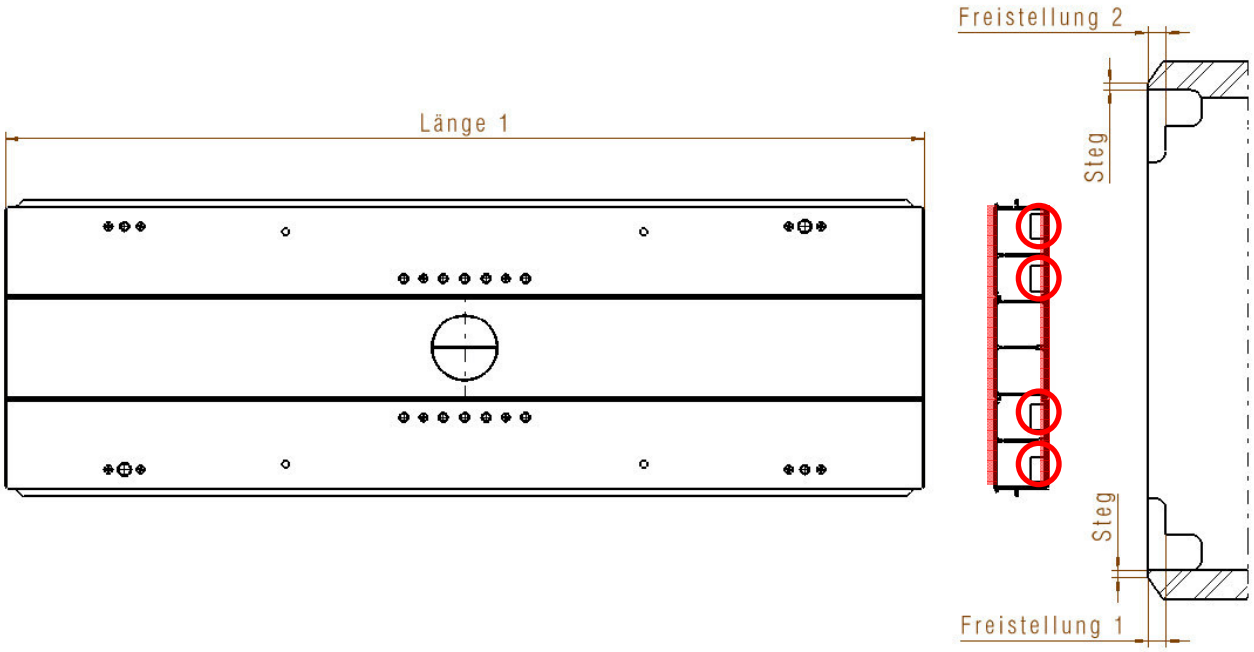
Inspections and documentation in accordance with the "production and test record" provided. The document must be requested from Stadler.

4.3.2 Underframe HF

Inspections and documentation in accordance with the "production and test record" provided. The document must be requested from Stadler.

4.3.3 Main cross member

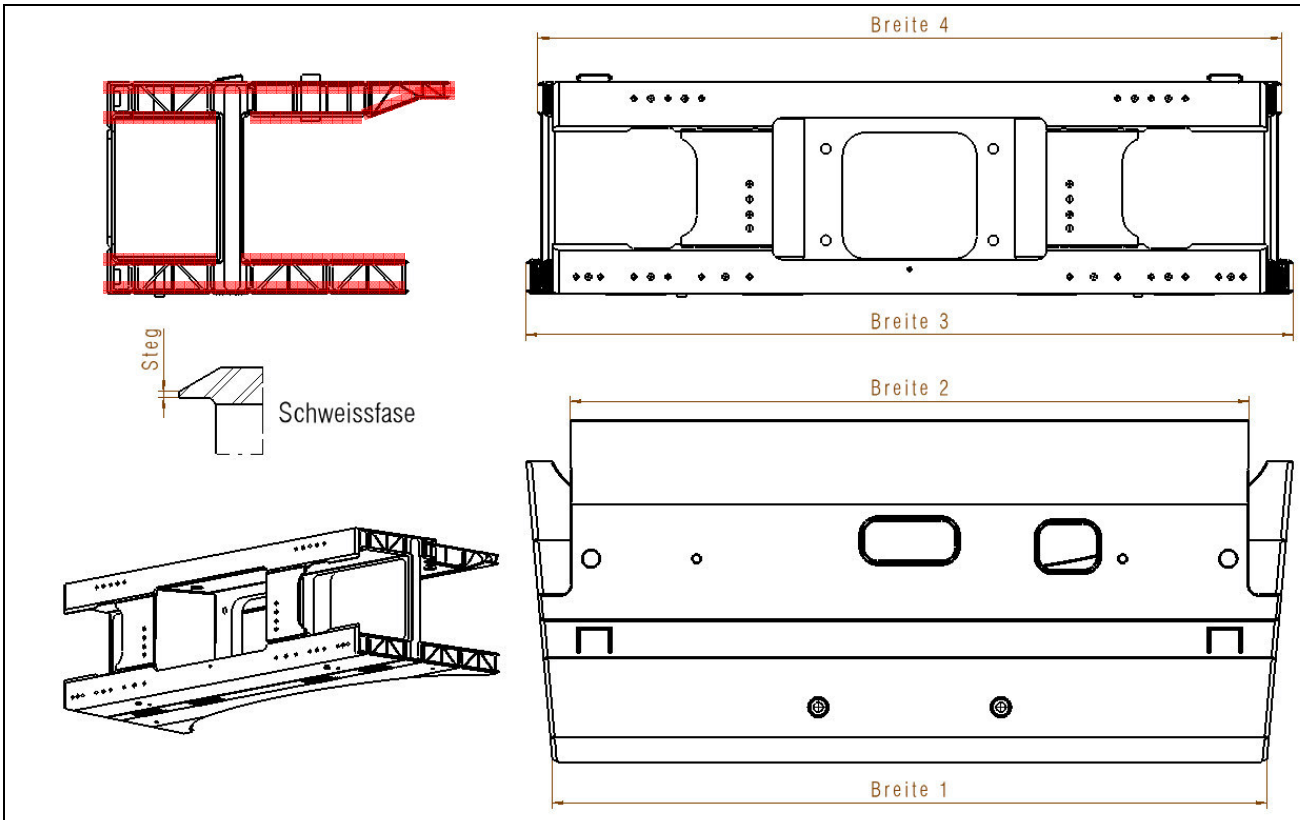


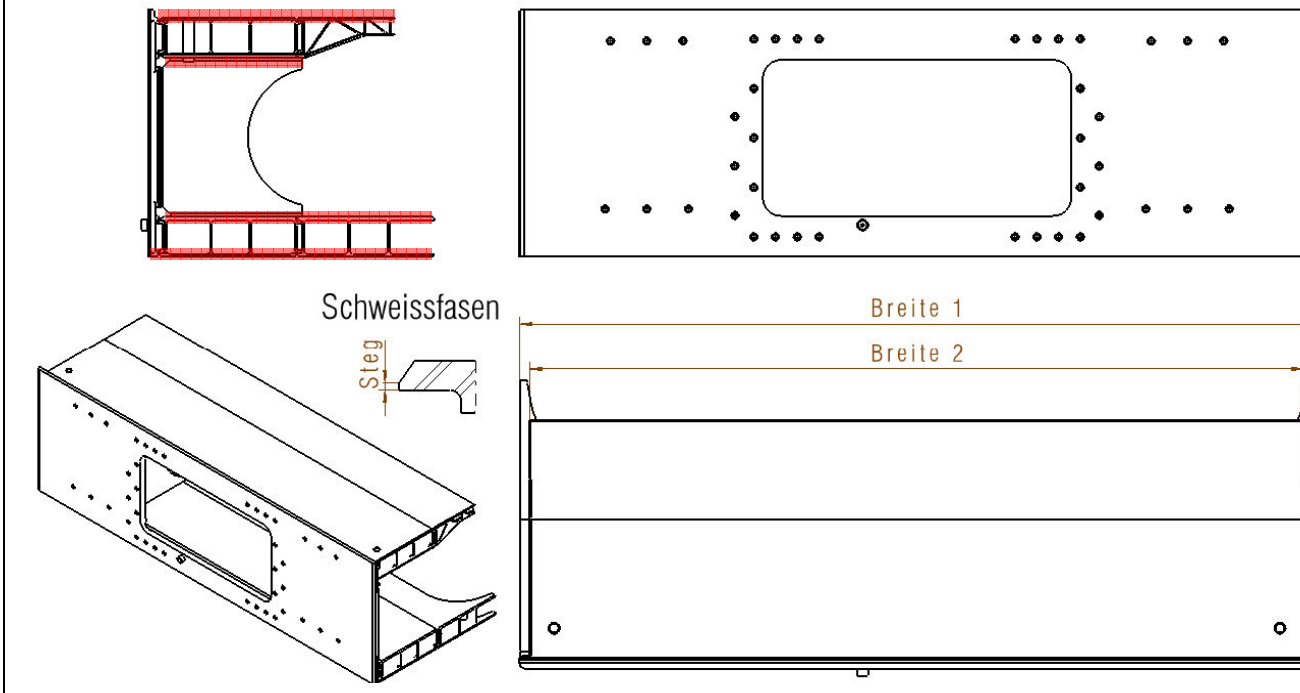


Inspection criteria:

- Strut and bracket of the welding bevels
- Dimensions: width / length
- Wall thickness
- Exemptions
- Proof of installation of steel backing layers
- Geometry/contour

4.3.4 Front structures / headstocks

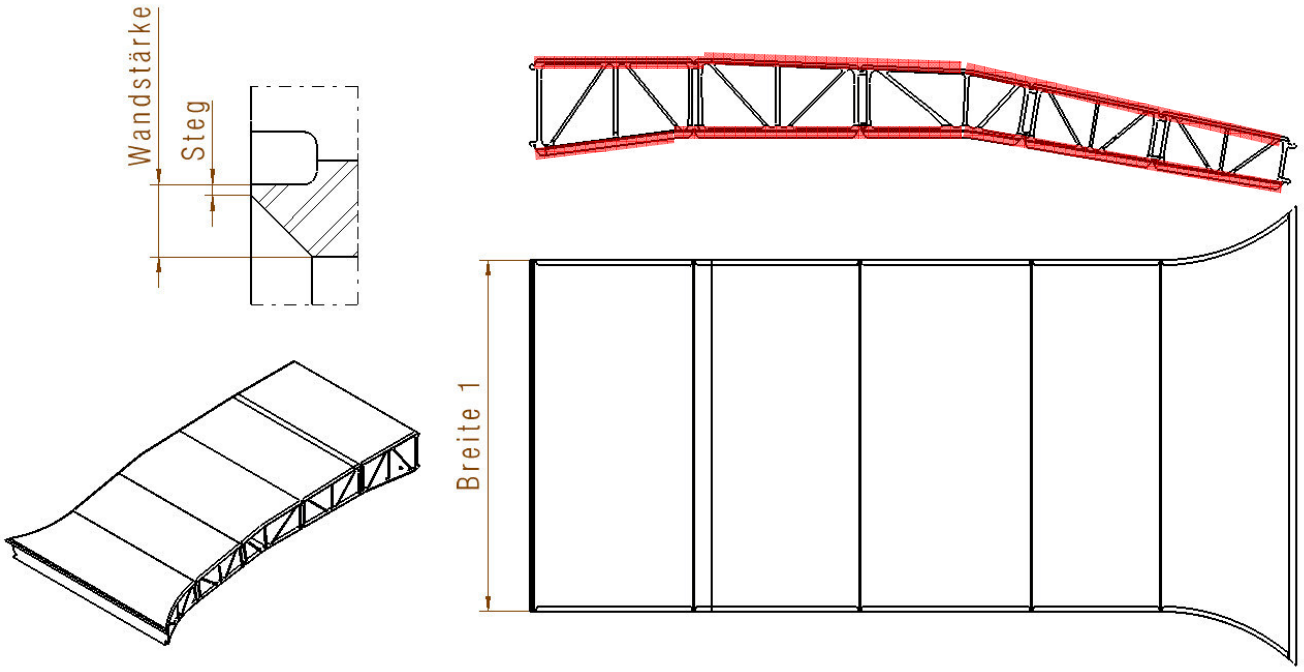


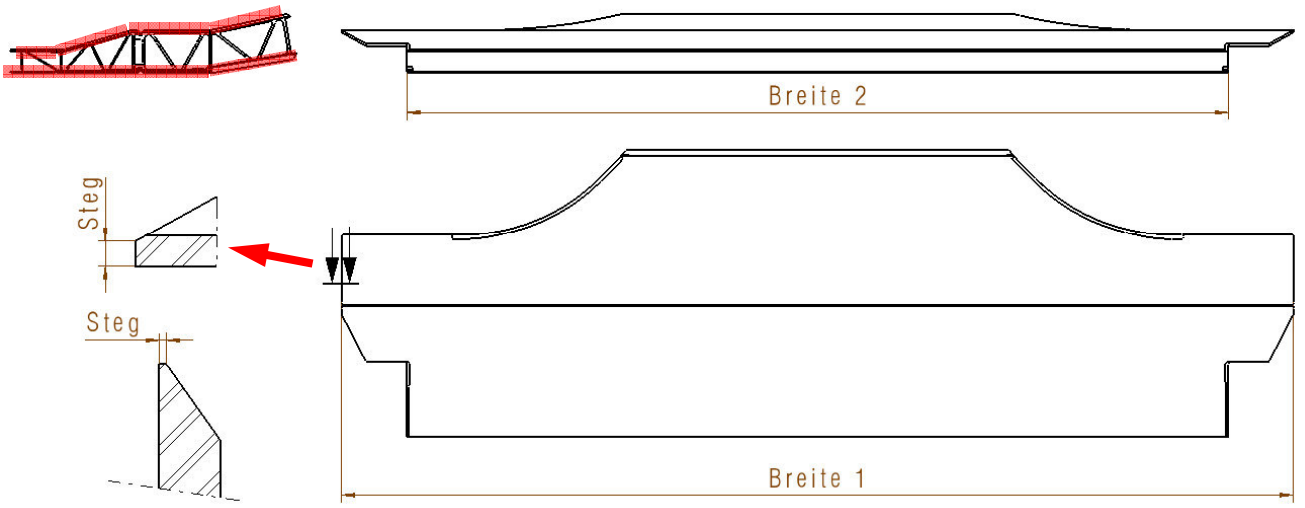


Inspection criteria:

- Strut and bracket of the welding bevels
- Dimensions: width / length
- Wall thickness
- Geometry/contour

4.3.5 Girder-built underframe

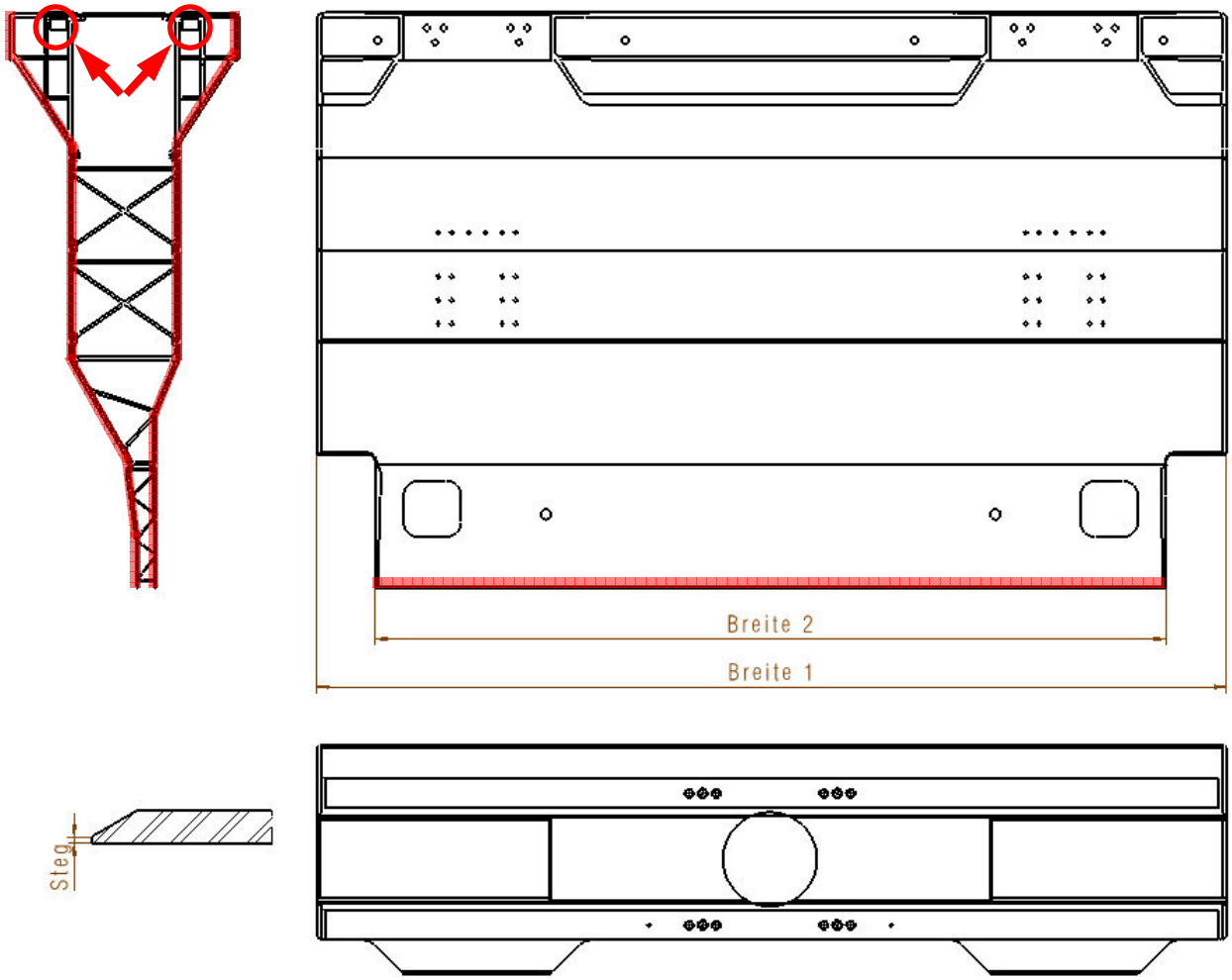




Inspection criteria:

- Strut and bracket of the welding bevels
- Dimensions: width / length
- Wall thickness
- Geometry/contour

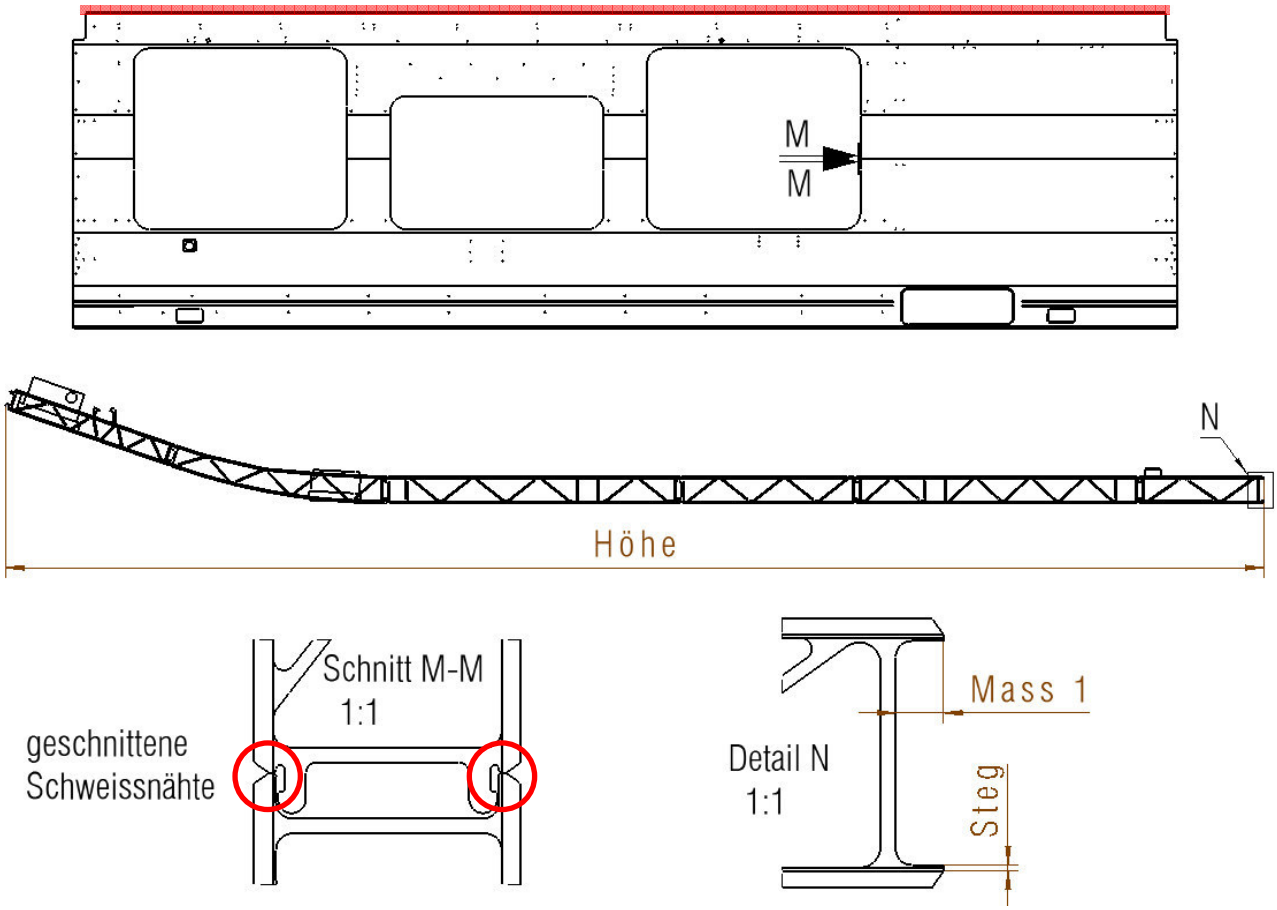
4.3.6 Headstock / front part



Inspection criteria:

- Strut and bracket of the welding bevels
- Dimensions: width / length
- Wall thickness
- Proof of installation of steel backing layers
- Geometry/contour

4.3.7 Side walls



Inspection criteria:

- Strut and bracket of the welding bevels
- Height: note the production dimension
- Cut welds: Check for full-depth weld
- Dimension 1: In liaison with Stadler
- Wall thickness
- Geometry/contour

STADLER

Article no. **10110663**
Document No. **BU_1172906 f**
Status Released
Document type Specification
Number of pages 4

TS-0179-07 Delivery specification for structural parts and structural assemblies

Part 7: Requirements for processing structural machined parts

(Semi-finished products with a Material Test Report in accordance with 3.1 EN 10204)

Index	Change	Date	Created	Checked	Released
_	First edition	25.09.2007	Guido Oesch	Björn Berbig	Micha Bröcker
a	Revision	22.08.2008	Micha Bröcker	Björn Berbig	Guido Oesch
b	Revision	21.07.2011	Guido Oesch	Björn Berbig	Micha Bröcker
c	Revision	25.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Oesch	J. Ruess
d	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess

e	Traceability, delivery documents, revisions added	21.09.2016	D. Löffel	M. Bröcker	M. Bröcker
f	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-07 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

End and back walls, door portal corners, door portals, body blocks, wheelset control arm, yaw damper brackets, transition parts, end plates, window posts and side wall parts made out of solid profiles or sheet material or from cast iron and forging blanks, machined profiles such as HF/LF solebars, solebars for the UF front parts/UF middle sections, roof girders, etc.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- The supplier must be approved by Stadler Quality Control.
- The supplier must perform a first article inspection. This includes checking and documenting all dimensions and properties.
- Stadler shall conduct the first piece acceptance test at the supplier's site on agreement or when there are incoming goods at Stadler's site.

  Readiness for acceptance must be reported to Stadler at least one week before the delivery date.

  At the very least, the following documents must be submitted for the first piece acceptance test:
  - Document recording the first article inspection conducted by the supplier
  - Test certificate or measurement and test report (if required)
  - Material Test Reports according to 3.1 EN 10204 for semi-finished products

  If the first piece acceptance test does not take place at the supplier's site, the documents listed above must be supplied with the initial delivery, along with the delivery documents.

2.2 Semi-finished products

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Declaration of compliance with the order for supply parts

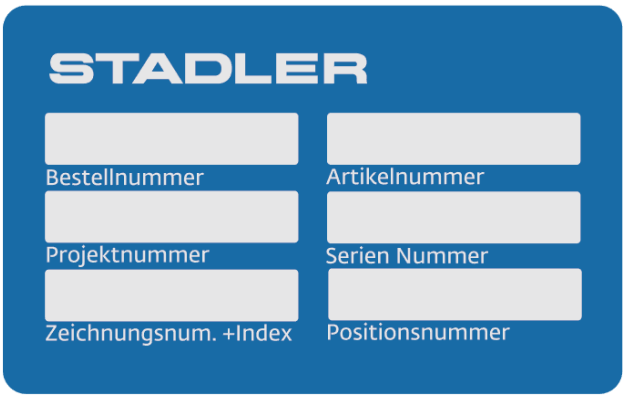
- Declaration of compliance with the order 2.1 in accordance with EN 10204 on the delivery note

Declaration of compliance with the order 2.1 EN 10204:	
The parts were tested and correspond to the agreements of the order The material inspection certificates for the semi-finished products used are present and will be stored for 10 years.	
Plant expert	Date

2.4 Labelling of the parts

- For traceability purposes, the parts must be marked individually with a parts plate as follows:
  - Order number and order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Serial parts number (upon agreement)
  - Supplier
- To identify the part, a weatherproof adhesive label must be positioned in a clearly visible position.

Example of an adhesive label



2.5 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. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Clean and dry
  - Free of shavings, oils and any cooling water residues
  - Machined functional surfaces (fits) on steel parts must be protected against corrosion

2.6 Documentation to be supplied

- Delivery note with integrated factory certificate 2.1 EN 10204
- Material Test Report for the semi-finished product according to 3.1 EN 10204 (if it has not already been provided)

2.7 Improvements / changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.

STADLER

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TS-0179-08 Delivery specification for structural parts and structural assemblies

Part 8: Requirements for laser cut, edged, bent, punched and machined parts for structural assemblies

(Semi-finished products with a Material Test Report in accordance with 3.1 EN 10204)

Index	Change	Date	Created	Checked	Released
b	Revision	22.11.2010	Björn Berbig	Guido Oesch	Micha Bröcker
c	Revision	21.07.2011	Guido Oesch	Björn Berbig	Micha Bröcker
d	Revision	26.06.2013	Daniel Ill	Micha Bröcker	Simon Leutenegger
e	Revision	25.02.2015	M. Bröcker	Knechtle, Berbig, Römgens, Oesch	J. Ruess

f	Article number added	15.06.2016	M. Bröcker	M. Knechtle	J. Ruess
g	Revision	29.04.2020	Micha Bröcker	Hannes Zuber	Jürgen Ruess

1. Scope of application

Technical Specification TS-0179-08 is part of the delivery specification for structural parts and structural assemblies and applies together with TS-0179-01 for the following parts:

Laser cut, punched and/or machined and/or edged or rounded sheet metal parts, bent parts, machined parts such as the frame for the WC cistern, destination displays, emergency door release,
sander cover, bogie support plate, steel shim plates, steel bushes and all machined profiles if an inspection certificate 3.1 EN 10204 is required for the semi-finished product in accordance with TS-0179-01.

2. Requirements

2.1 General requirements

- The supplier must be certified in accordance with ISO 9001.
- The supplier must be approved by Stadler Quality Control.
- For laser cut sheet metal parts, cut surfaces must have a cut quality of 33 as per DIN EN ISO 9013
- The supplier must perform a first article inspection. This includes checking and documenting all dimensions and properties

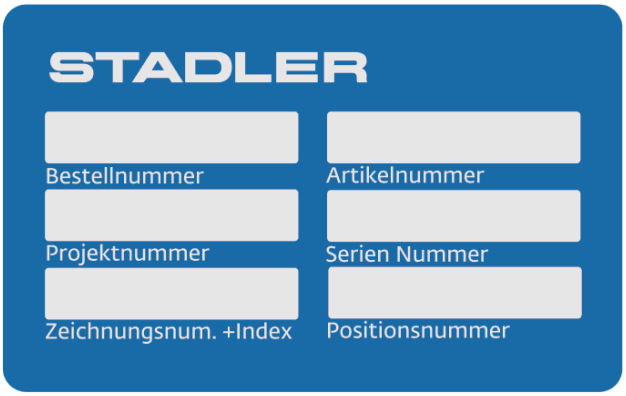
2.2 Semi-finished product

- The semi-finished products must be procured as per the requirements of TS-0179-01.

2.3 Labelling of the parts

- The parts are to be labelled individually or on each packing unit as follows for unambiguous identification:
  - Order number, order item
  - Project number
  - Article number
  - Drawing number/heading, index
  - Supplier
- To identify the part, a weatherproof adhesive label must be positioned in a clearly visible position.

  Example of an adhesive label



2.4 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. Refer to supplier instructions/transport regulations or logistics specification
- The following requirements apply concerning the surface quality:
  - Clean and dry
  - Free of shavings, oils and any cooling water residues
  - Machined functional surfaces (fits) on steel parts must be protected against corrosion

2.5 Documentation to be supplied

- Delivery note and reference to the list in accordance with chapter 2.3
- Inspection certificate 3.1 EN10204 for the semi-finished product (if not provided by the purchaser)

2.6 Improvements / changes

Any changes and improvements that the supplier's site may make after the first article inspection/FAI must be notified in advance and in writing to the ordering party, and must be approved by the ordering party.

3. Document flow

The Q documents must be sent electronically via email to the Q department of Procurement.

The e-mail address for the Q department of Procurement can be seen in the order. Pay attention to the exact marking. If necessary, this can be taken from the document Supplier Instruction/Transport Instructions.