

# **Technical Terms of Delivery (TTD)**

**HUBER+SUHNER**

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## 1 Document revision

Revision	Change	Date	Author
A	New	07/08/2013	M. Feurer / 4311
B	Ref. no. 9 packaging instruction	14/11/2014	U. Bartholdi / 4823
C	6.8 Audits unlimited access for customers and authorities	25/07/2014	M. Feurer / 4311
D	Amended chapters 6.5, 6.7, 8.7 and 10.3	22/12/2015	S. Isler / 4285
F	Change from QS 9000 → AIAG, ISO/TS 16949 → IATF 16949	06/09/2017	S. Isler / 4285
G	Changes due to IATF 16949: QM System suppliers, statutory and regulatory requirements, Premium freight	04/04/2018	S. Isler / 4285
H	Amendment of section 6.7.5 initial sample inspection. New section 6.7.6 regarding re-qualification. Removal of section 11.	06.06.2019	4285 Isler
I	Extension of section 2.2: Included reference 10 IRQB Guideline Special Processes. Amendment of section 6.4 changes and discontinuations	30.07.2020	4285 Isler
J	Added internal document 17 and external document 11. Corrected welding regulation norm to EN 15085 in section 5	01.02.2021	4285 Isler

## 2 References to other documents

Internal and external documents referred to hereinafter form an integral part of these Technical Terms of Delivery.

### 2.1 H+S internal documents

Ref	Document number	Designation
1	0000450556	Category turned / milled parts
2	0000450586	Category Metal die casting parts and moulds
3	0000450584	Category Injection-moulded plastic parts and moulds
4	0000707762 0000707764	Category stamping / bending (German) Category stamping / bending (English)
5		Category wires / strands
6		Category granulates / adhesives
7	0000196272	Procurement space
8	0000242152	Procurement pressing tools
9	0000451179	Packaging instruction
10	0000359897	Product label specification: SPLR-items with SPLR brand
11	0000359301	Product label specification: SPLR-items with H+S brand
12	0000361060	Shipment label specification: Address and shipment labels
13	0000450579	Surface treatment, finish and cleanliness
14	0000312778	Powder Coating
15	Inn04_cl	Supplier Requirements feasibility
16	Inn04_fo	Initial sample inspection report
17	ORF10_in_guideline-for-welding_en	Guideline for Welding

### 2.2 External documents

Ref	Document name	Designation
1	FMEA Manual	Potential Failure Mode and Effect Analysis (AIAG)
2	PPAP Manual	Production Part Approval Process (AIAG)
3	SPC Manual	Statistical Process Control (AIAG)
4	EN 9102	First Article Inspection Aerospace
5	EN 9103	Management of changes in main characteristics aviation and aerospace
6	ISO 10007	Configuration management
7	EN 10204	Test certifications
8	AS5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
9	AS6174	Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Material
10	IRQB Guideline 6 Special Processes	Defines and describes the special processes that are relevant to the rail sector and supports the management of those processes in accordance with the ISO/TS 22163 and IRIS Certification® Conformity assessment.
11	MAQMSR	Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers

Description	Requirement
<p><b>3 Preliminary remarks</b></p> <p>HUBER + SUHNER Group is a leading international manufacturer of components and systems for the electrical and optical connection technology. Our connectors and transmission lines influence to a large extent the reliability of messaging, communication and monitoring systems. Part of our core services is, on the one hand, a wide range of products, on the other hand, constantly high quality and a fast, flexible and reliable worldwide service. People and goods are dependent on the properties and quality of your products due to their use in mobile data transmission, fibre optics, aviation, space travel, medical technology and many other industrial applications.</p> <p>HUBER+SUHNER depends on efficient suppliers in order to continue to be able to fulfil our customers' requirements concerning cost leadership, quality and flexibility in the future.</p> <p>These Technical Terms of Delivery (TTD) are a guide for fair cooperation between system suppliers and H+S including all subsidiaries. They shall help to better understand our requirements concerning quality and technology and are deemed to form part of each order, specification and drawing. However, these TTD are not mandatory for suppliers that exclusively deliver engineering samples.</p> <p><b>4 Procurement and quality policy</b></p> <p>We strive for fair and long-term targets with our suppliers. Continuous cooperation improvements in the suppliers' processes and systems contribute to cost reduction, delivery reliability and quality improvement.</p> <p>Rapidly increasing requirements towards HUBER+SUHNER also require a highest degree of flexibility of our suppliers and the readiness to quickly and creatively contribute to solutions. Deliveries and services of the supplier therefore must fully fulfil all agreed and statutory requirements. In order to pursue this zero-defect target, consistent advance quality planning and effective production control are indispensable. The focus must be on avoiding mistakes. Please also refer to the H+S Quality Policy at <a href="http://www.hubersuhner.com">www.hubersuhner.com</a>.</p> <p><b>5 Supplier Quality Management System Development</b></p> <p>Suppliers are required to maintain a quality management system and shall prove with a certificate that they meet at least the requirements according to ISO 9001.</p> <p>Serial automotive suppliers shall strive for the ultimate objective of becoming certified according to IATF 16949.</p> <p>If customers of HUBER+SUHNER demand other management systems (e.g. EN9100, ISO/TS 22163, ISO13485), those must be agreed separately with the supplier.</p> <p>Environmentally compatible production and products are challenges we all have to take on. We therefore ask our suppliers to introduce an environmental management system in accordance with ISO 14001. Requirements according to RoHS and REACH (statutory requirements) must be fulfilled. Upon request of HUBER+SUHNER, the supplier must allow inspection of relevant documentation. HUBER+SUHNER must be informed about changes to the documents that could influence the corresponding approvals.</p> <p>It shall be the supplier's obligation to develop product quality and optimise costs with proper monitoring and development of production technologies in use.</p>	<p>Agreed ppm - Target Compliance with deadlines &gt;=96% Complaint rate &gt;&gt;99%</p> <p>Minimum requirements: ISO 9001</p> <p>Automotive serial suppliers: Strive for IATF 16949</p> <p>Expansion to higher QM systems such as EN 9100, ISO/TS 22163 and/or ISO 13485 if required by H+S</p> <p>NADCAP or comparable is desired to be obtained for special processes</p> <p>ISO 15085 or ISO 3834-2 is also advantageous for welding</p>

<p><b>6 Quality management</b></p> <p><b>6.1 Quality Assurance Agreement</b></p> <p>These TTD shall constitute the Quality Assurance Agreement between supplier and HUBER+SUHNER and form an integral part of the HUBER+SUHNER Conditions of Purchase respectively, if applicable, of the General Purchase Contract between HUBER+SUHNER and the supplier. In specific cases, a separate Quality Assurance Agreement (QAA) may be concluded that describes product-specific quality requirements and completes the TTD. The QAA shall help to prevent quality problems and to optimise quality costs.</p> <p><b>6.2 Identification and traceability of products</b></p> <p>Deliveries to HUBER+SUHNER must be clearly marked according to the order guidelines. Supplier must ensure traceability by a marking that is firmly attached to the delivered article. In case of complaint, it must be possible to draw a clear conclusion to the complained consignment in accordance with ISO 9001 in order to be able to limit the number of defect parts and of the source material.</p> <p><b>6.3 Reject control</b></p> <p>Purchasing of HUBER+SUHNER must be informed immediately if deviations from defined requirements are detected. The concerned parts may be delivered only after clarification by HUBER+SUHNER (e.g. assembly sample) and a temporally or quantitatively limited deviation permit by HUBER+SUHNER. This process must be documented in writing and the delivered goods must be clearly marked with the deviation permit.</p> <p><b>6.4 Changes and discontinuations</b></p> <p>All planned supplier changes such as transfer to a new production location, changes of production processes, materials or sub-suppliers must be validated and approved in writing by HUBER+SUHNER. H+S will decide whether re-sampling is necessary for re-qualification (see chapter 6.7.5). HUBER+SUHNER must be informed in writing in advance, in a reasonable period of time, about all planned discontinuations of products.</p> <p><b>6.5 Quality records</b></p> <p>If not agreed otherwise, supplier shall document its quality measures during the whole production process in the form of quality assurance records. Retention period of quality records for the purpose of evaluation by HUBER+SUHNER shall be 30 years. These records must be made available for inspection upon request by HUBER+SUHNER. The records must be treated as confidential and may be made accessible to third parties solely after consultation with HUBER+SUHNER.</p> <p><b>6.6 Confidentiality</b></p> <p>HUBER+SUHNER customer-specific documents and specifications, including technical documents and quality requirements, must not be made accessible to other customers. Without prior approval by HUBER+SUHNER, the supplier must not arrange subcontracting of orders to third parties.</p> <p><b>6.7 Product- or process-specific demands on quality assurance</b></p> <p>The form "Supplier Requirement Feasibility" is intended to determine whether the supplier has implemented all design documentation and specification requirements and whether the supplier is able to produce products that fulfil these requirements during series production. In case of PPAP requirements in accordance with IATF16949 / AIAG, the "Supplier Requirement Feasibility" form can be used as well. If not defined otherwise, submission level 3 shall apply.</p> <p>In case of First Article Inspection (FAI) requirements in accordance with EN 9102, please act in accordance with the stated current standard. Usually, a FAI (not to be confused with initial sample inspection) is used for finished goods.</p>	<p>Acceptance of the TTD is required to get pre-qualified.</p> <p>Minimum labelling requirements H+S      Order number             Article number Supplier:    Batch number             Job number             Positioning,    Labelling             Bar code pursuant to reference to other documents</p> <p>Basis for reporting obligation for all segments such as automotive, space, defence, medical, etc. under AIAG or according to IRQB Guideline Special Processes (Railway)</p> <p>Thirty years unless agreed otherwise</p> <p>Pursuant to the form Supplier Requirements Feasibility (inno04) Reference AIAG manual</p> <p>Reference EN 9102</p>
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<p><b>6.7.1 FMEA (process and design)</b></p> <p>If not agreed otherwise, systematic processing in the form of a FMEA (Failure Mode and Effects Analysis) is mandatory for analysis of potential failure modes during process development, start of series production and series production, as well as for scheduling of concrete preventive measures. The FMEA must be adjusted when implemented and in case of changes in the process or the specification. Furthermore, FMEA is a method for person-independent archiving of development results and an instrument of continual improvement.</p> <p><b>6.7.2 Test gauges / test equipment</b></p> <p>Test gauges and test equipment provided must be included into supplier's control of test equipment. They must be marked accordingly and assigned to the product. Features of the test equipment must be proven as part of the First Article Inspection. Test equipment must be designed in such way they can cover the whole production development and production period. The expenses for test gauges, test equipment and measurement fixtures shall be borne by the supplier. Measurement System Analyses (MSA) must be furnished independently while ensuring that the used test equipment are suited for the desired measuring purpose. The procedures pursuant to MSA AIAG are to be applied and proven for this. The supplier must ensure calibration of the test gauges, test equipment and measurement fixtures and furnish them upon request.</p> <p><b>6.7.3 Proof of process capability</b></p> <p>Process capability tests serve as proof of the quality capability of processes. Supplier must independently furnish capability proof about all test and process characteristics (primarily, supplier must proof capabilities in the context of its processes). Calculation and implementation of process capabilities must be made in accordance with common standards (DIN ISO 21747), provided there is no other higher-order requirement of HUBER+SUHNER. Additional process capabilities must be proven for the mass and properties defined in the drawing.</p> <p>Proof of process capability for HUBER+SUHNER must be furnished free of charge, are to be handed over upon request and must also be furnished for the current series.</p> <p>If process capability values are not reached, the concerned part characteristics must be checked in full and the results documented. A measurement systems analysis must be furnished for the used test equipment. HUBER+SUHNER must be informed about the reject rate.</p> <p><b>6.7.4 Feasibility analysis</b></p> <p>By execution of a feasibility analysis, supplier confirms to have checked all requirements from existing technical requirements and to be able to fulfil such requirements. This applies both for production feasibility and verifiability and for their proof. Supplier is also encouraged to critically question technical guidelines with regard to their suitability for production and to make suggestions for improvement. Corresponding improvement suggestions must be indicated on the form "Supplier Requirements Feasibility".</p> <p><b>6.7.5 Initial sample inspection (pre launch)</b></p> <p>Approval/disapproval for series delivery of a supplied product with article number is made via an initial sample inspection for the supplier. Sampling is mandatory for the following cases:</p> <ul style="list-style-type: none"> <li>• an approved supplier delivers an article for the first time</li> <li>• repeated sampling due to not fulfilled set points of individual characteristics</li> <li>• after changes to the technical documentation of an article (revision change)</li> <li>• after changing or transfer of tools</li> <li>• after changing of supplier's production process</li> </ul> <p>Initial samples must always be produced in accordance with the working process intended for series production and with the machines, material (including primary material suppliers), tools and plants intended for series production. Tests during production and final inspection must be carried out with the test equipment and gauges intended for series production.</p>	<p>Pursuant to FMEA Manual "Potential Failure Mode and Effects Analysis" (based on AIAG), current version. Deviations must be reported to H+S</p> <p>Testing interval: Max. 1 year, however as appropriate based on conditions of use.</p> <p>Pursuant to Measurement System Analysis (MSA) Reference Manual AIAG</p> <p>Fundamentally pursuant to ISO 21747 or SPC Manual "Statistical Process Control" based on AIAG, however CPk threshold values conforming to ppm - Targets</p> <p>Pursuant to the form Supplier Requirements Feasibility (inno04)</p> <p>If required, H+S can provide a template for Initial Sample Inspection Reports</p> <p>Repeat - initial sampling see 6.4 Changes and discontinuations</p>
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Deviations from specifications and guidelines must be clearly noted on the initial sample report. HUBER + SUHNER undertakes an evaluation of sample parts provided in the form of an incoming goods inspection with the involvement of additional testing and evaluation departments. The supplier will be informed of acceptance in writing. Series delivery may only commence following approval of the sample.

#### **6.7.6 Requalification**

In addition to the cases mentioned in chapters 6.4 and 6.7.5, the supplier shall have a requalification procedure in place in order to prove a stable quality level during series production.

The criteria as well as the frequency for carrying out a requalification shall be defined by the supplier via the control plan. Requalification instructions on H+S drawings shall always be the preceding information. The requalification shall be executed according to the initial sample inspection rules described in chapter 6.7.5. The requalification results shall be documented by the supplier and provided to H+S on request.

#### **6.7.7 Products with appearance requirements (COSP)**

The production of parts subject to requirements related to external appearance (COSP Cosmetic Specification) requires the use of special work processes at all stages of the value chain. As needed, the relevant parts will be defined via specification and will be approved for production by selected suppliers pursuant to HUBER+SUHNER operating procedure guidelines.

#### **6.7.8 Transport**

The supplier must fundamentally ensure that suitable means of transportation and packing materials are used. In the case of carriage free delivery of the goods to a destination, the supplier is obligated to ensure quality until delivery to the point of destination. The freight carriers are to be included in the supplier's QM system corresponding to this requirement. The supplier must ensure that the quality of the deliveries is not impaired by proper transportation to the recipient. The supplier must provide notice in the event the damage cannot be excluded by means of the prescribed packaging and suggest a suitable alternative form of packaging. In the case of products where transportation is a critical factor, HUBER+SUHNER may request documentation and/or a transport audit.

#### **6.8 Audits**

HUBER+SUHNER has the right to review the effectiveness of the quality management system at any time. For such purposes, the supplier will grant HUBER+SUHNER, its customers and the authorities unlimited access to the quality documents as well and unimpeded access to production facilities in which the products are produced for HUBER+SUHNER.

#### **6.9 Complaints**

Complaints are recorded at H+S on a global basis with the aid of CATS (Corrective Action Tracking System) and are analysed and addressed using the 8-D method in order to ensure suitable measures for correcting, protecting against and/or preventing errors.

##### **6.9.1 Notification of the supplier**

The supplier will be sent a defect notice with comments as to expected corrections in the event defects are discovered in purchased articles. A CATS processing form as well as (to the extent necessary) an explanation of the 8-D method will always be attached to the defect notice. Photographs showing the defect will be attached to the extent possible. The CATS processing form includes information on order number and date, responsibility, article/lot and quantity information as well as a description of the problem and an audit assessment.

The supplier is required to address the problem based on the 8-D method and to enter the results, such as immediate measures, causes of the error, correction and protective measures as well as responsible persons and deadline information, in the CATS form and return it to the

Confirmation of receipt: 48hrs  
Submit immediate measures (discipline 3 from 8-D): 3 business days  
Distribute an action plan in < 6 business days

H+S reserves the right to demand a replacement delivery

H+S CATS manager electronically (an internal error processing form from the supplier will also be accepted to the extent the 8-D method is applied and the form has been completed electronically). The responses will be checked for plausibility and effectiveness of the improvement. Additional information will be requested in the event responses are incomplete or unclear.

**The top-most goal of this process is that repeat errors are effectively prevented and the cause of the error is eliminated on a permanent basis!**

#### **6.9.2 Labelling of repaired and/or replacement deliveries**

Return deliveries must be clearly labelled as such on the delivery slip and on the packaging. CATS N. (Complaint No.) e.g. 13-xxxx incl. Explanation of work performed

#### **6.9.3 Invoicing**

Any costs for work performed to cure a defect and sorting out performed by H+S will be charged to the supplier (after notice in advance). Invoices related to goods subject to evaluation will not be sent to the accounting department. This occurs only after acceptance of the delivery.

#### **6.10 Escalation process**

Repeated errors, insufficient supplier evaluations or repeated unsatisfactory evaluations related to observing deadlines and quality noted as part of supplier monitoring represent a clear sign of procedures which have not been mastered and will be handled accordingly pursuant to an escalation sequence established by H+S. This escalation sequence describes the escalation criteria and the measures resulting there from and lists the consequences. The escalation sequence comprises the following three escalation phases:

<b>Phase</b>	<b>Escalation criteria</b>	<b>Measures</b>	<b>Lead H+S</b>
1 Supplier has repeated performance problems	<ul style="list-style-type: none"> <li>Inadequate supplier evaluation</li> <li>Unsatisfactory delivery performance</li> <li>Unsatisfactory quality</li> <li>Measures from open CATS are delayed and/or agreements are not kept</li> <li>Repeated errors despite completed 8-D report</li> </ul>	<ul style="list-style-type: none"> <li>Notification letter to the supplier's management</li> <li>Problem-solving meeting with the supplier in order to clarify and define appropriate measures.</li> <li>Agreement to a written action plan</li> <li>100% outgoing goods inspection at the supplier - Labelling of the delivery</li> <li>If applicable incoming goods inspection at H+S until further notice</li> <li>Flat fee for processing complaints</li> </ul>	Quality
2 Supplier does not successfully resolve problems	<ul style="list-style-type: none"> <li>Measures from Phase 1 are not effective</li> </ul>	Additional measures for Phase 1: <ul style="list-style-type: none"> <li>2. Escalation letter to the supplier's management</li> <li>100% sorting out by an external service provider</li> <li>Performance of a supplier audit</li> <li>Intensive supplier management, regular status reports</li> <li>Review of supplier status</li> </ul>	Purchasing - Phase 1
3 Supplier is not suitable for H+S	<ul style="list-style-type: none"> <li>Measures from Phase 1 and 2 are not effective</li> </ul>	Additional measures for Phase 2: <ul style="list-style-type: none"> <li>Notification letter to the supplier</li> <li>Immediate exclusion of the supplier from new enquiries and new projects</li> <li>Escalation meeting with the supplier's management, if applicable with the imposition of a deadline</li> <li>Partial, or complete, elimination of the supplier as applicable</li> </ul>	Purchasing - Phase 2



<p><b>7 Environment, Ethics and Trade Compliance</b></p> <p><b>7.1 Environmental management and regulatory requirements</b></p> <p>Suppliers must ensure that all supplied products, processes and services to H+S conform to the current applicable statutory and regulatory requirements in the production or shipping country of the supplier and are compliant with H+S customer requirements, in particular with regards to limited hazardous and prohibited substances. The supplier undertakes to ensure compliance with respectively applicable standards and to inform H+S of any non-compliance on a timely basis.</p> <p>The supplier similarly undertakes to observe all environmental standards applicable to its business. The supplier has a duty to inform H+S in the event of any continued failure to comply with the foregoing.</p> <p><b>RoHS:</b> This Directive restricts the use of groups of substances in products. The supplier must ensure that it is able to comply with respectively applicable requirements. The current version is "EU Directive 2011 / 65 (RoHS)". Notice of any deviations from the foregoing must be provided in advance.</p> <p><b>REACH:</b> This Directive limits the use of substances in products and/or prohibits their use. The supplier must ensure that it is able to comply with respectively applicable requirements. Notice of any deviations from the foregoing must be provided in advance.</p> <p><b>WEEE:</b> Law regarding the sale, return and environmentally-friendly disposal of electrical and electronic devices.</p> <p><b>IMDS:</b> In the event demanded by customers of H+S (e.g. automotive), the supplier is obliged to input materials data into the IMDS (Internet based materials data system, see <a href="http://www.mdssystem.com">www.mdssystem.com</a>) and guarantee the correctness of information provided by it. On request of H+S, the supplier is required to provide documentation of IMDS input.</p> <p><b>7.2 Ethics</b></p> <p>Social and ethical requirements are an integral element for H+S - and not just in the procurement area. The supplier is requested to comply with social and ethical requirements (e.g. child labour, anti-corruption, conflict minerals etc.) and to provide documentation of compliance upon request or during an audit. This includes declarations of origin (e.g. documentation from smelters) and ensuring that relevant sub-contractors adhere to these requirements.</p> <p><b>7.3 Foreign Trade Data Regulations</b></p> <p>Supplier shall comply with all applicable national and international export control, customs and foreign trade regulations. The supplier shall also obtain all necessary export licenses to the applicable Foreign Trade Regulations.</p> <p>Supplier shall advise H+S in writing as early as possible, but not later than two weeks following the purchase order date of any information and data required by H+S to comply with all Foreign Trade Regulations applicable of export, import as well as re-export of products, in particular:</p> <ul style="list-style-type: none"> <li>the statistical commodity code according to the current commodity classification for foreign trade statistics and the HS (Harmonized Systems) coding</li> <li>the relevant preferential trade documents or statements relating to import duties in accordance with the applicable preferential trade agreements. If applicable the supplier shall provide to H+S a long term declaration for preferential trade purpose at the end of each year without prior written request.</li> <li>to comply with all applicable export and re-export control laws including but not limited to the "Export Control Classification Number" according to the U.S. Commerce Control List (ECCN) and to the U.S. Export Administration Regulations</li> </ul>	<p>EICC List (Conflict Minerals)</p>
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<p><b>8 Logistics requirements</b></p> <p><b>8.1 FIFO</b></p> <p>HUBER+SUHNER generally requires delivery based on the First-in, First-out principle. The corresponding batch/lots must be clearly and explicitly marked.</p> <p>Different batches, lots or runs may not be mixed in the same packing units even if labelled accordingly.</p> <p><b>8.2 Certifications (material certificates)</b></p> <p>The supplier is responsible for the use of correct materials pursuant to the materials specification (number of the corresponding specification is noted on the design).</p> <p>Material certificates pursuant to EN10204 must be attached to each delivery line. The supplier must verify the materials certificate on a regular basis.</p> <p><b>8.3 Packing</b></p> <p>Packaging must fundamentally be chosen such that the parts are not damaged while packaging or during transport. The foregoing applies to transportation with or without HUBER+SUHNER shipping containers. HUBER+SUHNER specifies the optimal lot size (OC) and type of packaging (tray, bulk goods) for certain products. The supplier is sent an automatically-generated e-mail in the case of such products within the lot size and type of packaging and a request to observe these requirements when packaging and shipping.</p> <p><b>8.4 Labels</b></p> <p>There are various standards applicable to labels (GS1, VDA, ANSI). These standards usually were created based on the needs of various industries. The ANSI (American National Standard Institute) standard has become accepted for industrial applications. This standard governs the data descriptors on the labels and is requested most frequently from our customers. Accordingly, HUBER+SUHNER requires that its suppliers use labels which are specifically based on the ANSI standard. The detailed standard may be easily found on-line using the search term "ANSI MH10.8.2".</p> <p><b>8.5 Incoming goods inspection by HUBER+SUHNER</b></p> <p>If not otherwise agreed and considering inspections to be conducted at the supplier, review and examination at HUBER+SUHNER is limited to the comparison of delivery papers, identity, packaging and substantiation (e.g. plant inspection certificate).</p> <p>Additional inspections will be conducted on a random sampling basis or during assembly or further processing as applicable. If required, testing instructions (DOC numbers on drawings) will be forwarded to the supplier.</p> <p><b>8.6 Conformity certification</b></p> <p>The following documents must be included in every delivery as proof of conformity. (every partial delivery, every delivery of repaired parts, every replacement delivery)</p> <table border="0"> <tr> <td><b>Materials</b></td><td>Based on material type and individual agreement, one of the following inspection certificates has to be provided: <ul style="list-style-type: none"> <li>• 2.2 or 3.1 according to DIN EN 1020</li> <li>or</li> <li>• Declaration of conformity according to ISO/IEC 17050-1</li> </ul> </td></tr> <tr> <td><b>System / Solution</b></td><td>Test protocol with clear test status and indication of all visible and hidden problems/deviations</td></tr> <tr> <td><b>Special processes</b></td><td>Recording (e.g. plot, data log) of the key process parameters for the entire duration of the relevant cycle</td></tr> </table>	<b>Materials</b>	Based on material type and individual agreement, one of the following inspection certificates has to be provided: <ul style="list-style-type: none"> <li>• 2.2 or 3.1 according to DIN EN 1020</li> <li>or</li> <li>• Declaration of conformity according to ISO/IEC 17050-1</li> </ul>	<b>System / Solution</b>	Test protocol with clear test status and indication of all visible and hidden problems/deviations	<b>Special processes</b>	Recording (e.g. plot, data log) of the key process parameters for the entire duration of the relevant cycle	<p>See also separate packaging instructions</p> <p>See also separate labelling instructions</p>
<b>Materials</b>	Based on material type and individual agreement, one of the following inspection certificates has to be provided: <ul style="list-style-type: none"> <li>• 2.2 or 3.1 according to DIN EN 1020</li> <li>or</li> <li>• Declaration of conformity according to ISO/IEC 17050-1</li> </ul>						
<b>System / Solution</b>	Test protocol with clear test status and indication of all visible and hidden problems/deviations						
<b>Special processes</b>	Recording (e.g. plot, data log) of the key process parameters for the entire duration of the relevant cycle						

### **8.7 Counterfeit Parts Prevention**

Suppliers delivering raw materials, standard parts (e.g. nuts, cable glands, shrink tubes), third party products (e.g. connectors, cables, antennas, lightning protectors) or electronic components to H+S shall establish and maintain a Counterfeit Parts/Material Prevention and Control Plan that meets the requirements of AS5553 and/or AS6174 as applicable. This plan shall be utilized by supplier to prevent the delivery of counterfeit materials and to control/report those materials identified as counterfeit.

Suppliers shall only purchase parts to be delivered or incorporated into products to be delivered to H+S from authorized sources. This includes Original Component Manufacturer/Original Equipment Manufacturer and their authorized distributors and authorized reseller. These products shall have conformity certification (see 8.6.) identifying all parties involved, from the product supplier to the direct source of the product and appropriate test results.

In the event that such goods can only be acquired from independent sources, due to any reason, written approval must be given by H+S. Suppliers shall provide written notification to H+S if supplier becomes aware or suspects counterfeit material was delivered to H+S within 24 hours.

Supplier's Counterfeit Material Prevention must include training of appropriate personnel, have containment and notification sections in event counterfeit material is discovered at supplier. Suppliers shall flow down the AS6174 and/or AS5553 requirements to their sub tier supplier.

### **8.8 Expedited Shipments and Premium Freight**

Expedited shipments include full or partial supplier shipments to reach H+S destinations faster in order to avoid material shortages caused by disruptions in the supply chain of the supplier.

If not otherwise agreed with H+S, the supplier is responsible for the organization of expedited shipments. The cost for such shipments have to be borne by the supplier.

The automotive norm IATF 1649 requires the documentation of occurrences of premium freight for such expedited shipments. Thus, H+S automotive serial suppliers shall keep record of the number of occurrences of premium freight including the related costs and root causes and shall provide H+S a report of occurrences of premium freight for every supplier rating period.

## **9 Supplied tools**

Tools, production and testing materials which are the property of HUBER+SUHNER and which are provided to the supplier must be permanently labelled in such a manner to that ownership is discernible and may be established. The mandatory system of units is the METRIC System.

## **10 Interpretation of drawings:**

Information provided in drawings (dimensions, weight) apply incl. treatment processes (e.g. hardening) and coatings (e.g. anodising).


### **10.1 Tolerances**

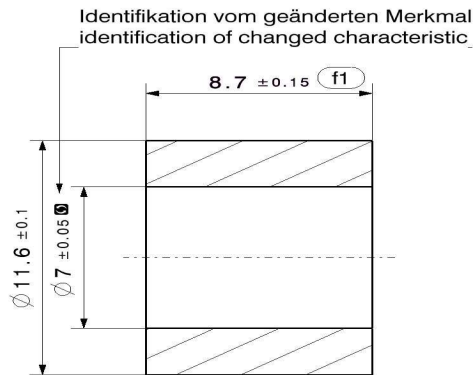
Generally applicable tolerances for weights without specified tolerances can be found in the heading of the drawing. This information applies to all types of linear dimensions and linear spacing (length, radius, diameter, etc.) as well as for angles.

If nothing is noted in the heading of the drawing, the tolerance principle pursuant to ISO 14405 (E) (form tolerance) shall apply.

General tolerances for form and position: Radius and symmetry are indicated in the heading of the drawing. If not provided in the heading, ISO 2768 Tolerance Class K applies for purposes of straightness and smoothness as well as perpendicularity.

## 10.2 Changes to drawings

In the case of changes, a drawing will be designated as new version (recognisable in the lower right corner of the heading with the comment "Release"). In addition, characteristics which have changed will be marked the symbol  (see example below). However, the supplier is obliged in any event to compare the drawing to the prior Release even if the changed dimensions are not noted on the drawing.



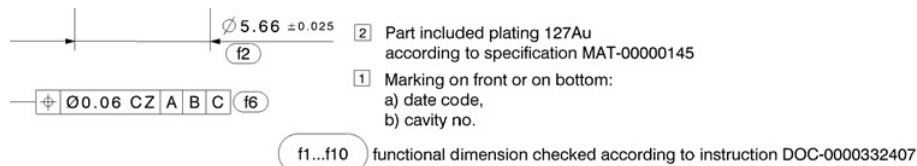
## 10.3 Special dimensions / functional dimensions and serial test dimensions

Special dimensions or functional dimensions respectively represent important and functionally-relevant features of the product or part design.

Special dimensions are entirely displayed within oval circles and typically include a dedicated Cpk requirement. See the example below.

$\text{Ø}3.3 \pm 0.06 \mid \text{cpk} > 1.33$

Functional dimensions are displayed as f1-fn values in oval circles and typically include additional part specific measurement instructions (separate DOC-requirement on drawing) in order to minimise measurement uncertainties and deviations. See the example below.



In special cases, features can also be defined for serial test dimensions. These serial test dimensions should be measured during the serial production and the results shall be documented within a test protocol. This test protocol must be delivered together with the parts.

## 10.4 Simplified CAD drawings

In the case of component geometries for individual parts, e.g. for form and tool-specific articles, simplified drawing will be used as needed. This goal is to reduce the measurement and testing expense. In addition, complexity is removed from 2-D drawing because the 3-D CAD will be determinative. For purposes of the foregoing, HUBER+SUHNER follows the recommendation VDA 4953 from the Verband der Automobilindustrie (German Association of the Automotive Industry - VDA).

## 10.5 Stamp drawings

If a large number of features are shown on a drawing, it may be the case that HUBER+SUHNER uses a so-called stamp drawing in order to simplify referencing the individual features in the additional, product-specific document.

In this case, each feature is marked with "fn" (e.g. f1, f2, f3,...)  $\text{Ø} 15 \pm 0.15$  (f2)

**10.6 Critical areas**

If certain surfaces/areas is subject to higher requirements, they will be labelled on the drawing as a “critical area” and marked accordingly. Potential criteria for “critical areas” include for example, pores, cavities, contamination, blistering, edges, form separation, depressions in tool ejectors, etc. In such cases, the procurement documents will supplemented accordingly and reference will be made to additional test and evaluation methods as needed.