


Work Instruction: Handling of Special Characteristics <small>Internal</small>	ASD-C45-3-01_EN	Revision 05	
	Page:		

Title:	Handling of Special Characteristics	Effective Date: 2020-12-01
Applies to / Scope:	Handling of Special Characteristics & Additional Important Characteristics at ZF Active Safety Division and all suppliers along the supply chain providing direct material or services to ZF Active Safety Division.	
Brief Description:	This document is an extension of ZF Directive DCF 17-02 Regulation of Special Characteristics available for download on the ZF Internet website (See QD83 1.9 Special Characteristics).	
Original language:	English.	
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Process classification:	C2.08.01 Manage Special Characteristics through the Product Life Cycle	
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Changes from the previous version are identified with a vertical line at the left margin of the regulation



1. Purpose

The purpose of this document is to communicate ZF Active Safety Division Requirements regarding handling of Characteristics and it is a Division A extension of ZF Directive DCF 17-02 Regulation of Special Characteristics.

DCF 17-02 is available for download on the ZF Internet website (See QD83 1.9 Special Characteristics).

This document does not cover Software Special Characteristics.

2. Scope

This Work Instruction applies to all employees in Division A of ZF Friedrichshafen AG and to all suppliers along the supply chain providing direct material or services to ZF Division A.

3. Responsibilities

The Responsibility to follow this Work Instruction is within all engineering groups and each employee, responsible to communicate special characteristics & additional important characteristics for Division A Products to Suppliers.

4. Definitions

Acronym	Definition
SC	Special Characteristics
AIC	Additional Important Characteristics
C	Critical Characteristic
S	Significant Characteristic
P	Process Characteristic
PTC	Pass Through Characteristics
M	Manufacturing Characteristic
CTP	Customer Touch Point
SPC	Statistical Process Control
SCM	Special Characteristics Matrix



5. Content

5.1 Characteristic Types

Two types of characteristics are defined in Div A:

- Special Characteristics (SC)
- Additional Important Characteristics (AIC)

These types must be assigned to a characteristic in case it is required by the internal standards. All designated Characteristics must appear in the Control Plan.

5.1.1 Special Characteristics (SC)

Special Characteristics are those characteristics identified by applying DCF 17-02. (Table 5.1.3- 1)Table 5.1.3- 1

5.1.2 Additional Important Characteristics (AIC)

Additional Important Characteristics are those characteristics which have not been identified as special characteristics as per DCF 17-02. AIC are considered relevant for the design within manufacturing by engineering and they need to undergo an inspection in the production area. (Table 5.1.3- 2)

Two AIC Types are considered: Manufacturing characteristics (M) and Customer touch points (CTP). M characteristics can be documented on drawings and CTPs will be documented solely in the SCM.

Additional Important Characteristics must not replace special characteristics.

5.1.3 Special and Additional Important Characteristics Overview

SPECIAL CHARACTERISTICS				
Characteristics classification	Identifier on Drawing	Identifier in other documents	Description of characteristics	Characteristic Qualification. Basic Requirements
Critical Characteristic		C	<p>A Critical Characteristic is a feature, dimension, or note, which may directly affect:</p> <ul style="list-style-type: none"> • safe vehicle/system operation or • compliance with authorities/ government regulations. 	<p>1- Compliance to the required process Short Term capability: min≥2,00 Long Term capability: min≥1,67</p> <p>2- Or Process Poka Yoke</p> <p>3- Or 100% Automatic Detection</p> <p>SPC as appropriate and First/Last Piece. Archiving and Retention of Documentation min. 15 Years after end of production.</p>
Significant Characteristic		S	<p>A Significant Characteristic is a feature, dimension, or note, which establishes</p> <ul style="list-style-type: none"> • the principal function (primary and secondary) in the vehicle/final product or • the subsequent assembly process at customer side. 	<p>1- Compliance to the required process Short Term capability: min≥1,67 Long Term capability: min≥1,33</p> <p>2- Or Process Poka Yoke</p> <p>3- Or 100% Automatic Detection</p>



				SPC as appropriate and First/Last Piece. Archiving and Retention of Documentation min. 3 Years after end of production.
Process Characteristics	P xx	P	<p>A Process Characteristic is a feature, dimension, or note, which</p> <ul style="list-style-type: none"> relevantly affects manufacturing and/or assembly and not related to product risk. <p>P-characteristics are (...) associated with tool service life, maintenance, machine process parameters, lead factors. P-characteristics must be determined by Process Planning/plant (...)</p>	<p>1- Compliance to the required process Long Term capability: $\min \geq 1,33$</p> <p>2- Or Process Poka Yoke</p> <p>3- Or 100% Automatic Detection</p> <p>Archiving and Retention of Documentation min. 3 Years after end of production.</p>
Pass Through Characteristic	PTC xx	PTC	<p>A Pass-Through Characteristic is a feature or note, which establishes the existence of customer relevant connection characteristics or functional elements with direct effect to assembly or test processes.</p> <p>And is already prefabricated by TIER 1-n and not modified or further used in manufacturing or assembly processes at TIER 1 side.</p>	<p>1- Process Poka Yoke or</p> <p>2- 100% Automatic Detection or</p> <p>3- SPC as appropriate</p> <p>100% visual inspection at Supplier and 100% visual inspection at ZF (appearance items only)</p> <p>Archiving and Retention of Documentation min. 3 Years after end of production.</p>
<p>Supplier is responsible to ensure that all drawing/specification component requirements are met. Capability Studies according to one of automotive standards VDA Volume2, VDA Volume 4 or AIAG book SPC.</p>				

Table 5.1.3- 1

ADDITIONAL IMPORTANT CHARACTERISTICS				
Characteristics classification	Identifier on Drawing	Identifier in other documents	Description of characteristics	Characteristic Qualification. Basic Requirements
Manufacturing Characteristics	Mxx	M	<p>(M) Manufacturing Characteristics are feature, dimension, or note which establishes a secondary fit/function relationship within the assembly or to the vehicle environment.</p> <p>Manufacturing Characteristics are not replacing Significant Characteristics neither Critical Characteristics.</p>	<p>1- Short term capability: $\min > 1.33$ Long Term capability: $\min > 1.0$</p> <p>2- OR 100% detection or poke-yoke</p> <p>3- OR PCM (supplier) or control plan (ZF plant) element with inspection plan agreed by plant and design engineering.</p>
Customer Touch Points		CTP	<p>CTP (Customer Touch Points) – CTP are those internal and external supplied characteristics of product with potential issue when or after customer fit the part to vehicle.</p> <p>These characteristics include part's mechanical, function, appearance, and traceability.</p> <p>CTPs include component PTCs (Pass Through Characteristics).</p>	<p>If Customer Touch Point is neither "C" or "S", characteristic it shall be treated as a PTC.</p> <p>CTP will not be documented on Drawings. It will be documented in the Special Characteristic Matrix (SCM).</p>



Capability Studies according to one of automotive standards VDA Volume2, VDA Volume 4 or AIAG book SPC.

Table 5.1.3- 2



6. Related Documents

- DCF 17-02 Regulation of Special Characteristics (SC) within the ZF Group
- QD83 Global Supplier Quality Directive Edition 2018

7. History and Change Log

Chapter	Page	Type of Revision	Revision	
			No.	Date
all	all	New edition	1	2019-11-01
Process classification	1	Update Process classification	2	2020-10-01
1.Purpose	3	Enlarging the scope to include ZF Internal Plants. This instruction replaces initial GS-C45-3-01_EN Handling of Special Characteristics		
5.Content	4	Include Qualification Requirements for P-Characteristics		
Entire Document	All	Add Additional Important Characteristics Qualifications. Exclude Software Special Characteristics from the Scope of this document.	3	2021.07.01
Entire Document	All	<ul style="list-style-type: none"> • Title Page: Updated Approvers: replaced Marc Bartol with David Irigoyen • Title Page: Removed double header in the first table • Title Page: Added Bernd Sentis as author • Entire Doc: Removed the background table for Chapters 1 to 7 • Chapters 1,2 & 3: Updated Wording for chapters in corporation with D. Krippner. • Chapter 4: Updated and sorted definitions table • Chapter 4: Added "SCM" to definitions table • Updated and split chapter 5 content <ul style="list-style-type: none"> o Chapter 5.1.1: added sentence: "All designated Characteristics must appear in the Control Plan." o Chapter 5.1.2: Added " yet are considered important by engineering groups." to highlight difference between "special" and "important" o Chapter 5.1.3: Added additional two sentences from DCF 17-02 to P-Char. Description for better differentiation to M-Char. o Chapter 5.1.3: Added Drawing Identifier for M-Char. since Braking is using it on Drawings. o Chapter 5.1.3: Removed one "Characteristics" from the header o Chapter 5.1.3: Added Info that CTP will not be documented on Drawings, but in SCM. 	4	2021.09.30
Chapter 5.1 and Chapter 5.1.3	4 & 5	<ul style="list-style-type: none"> • Removed "special" from the first sentence. • Added sentence "These types must be assigned to a characteristic in case it is required by the internal standards." • Changed: "Archiving and Retention min. XX Years after end of production." Into: "Archiving and Retention of Documentation min. XX Years after end of production." 	5	2021.10.21