ETN002 EN 2023-07	Special Characteristics	GRUPPE MOTION TECHNOLOGIES

Content

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1 Purpose

The representation of the identification of special features in drawings and the resulting requirements for capability studies.

2 Scope

This company standard is applicable to the whole of ETO GRUPPE.

3 Change History

2000-08 First edition

2005-10 Complete revision (Change No. 05/423)

2009-05 Introduction of SC and CC by means of the following items:
5 Translation Table
6 Marking of special characteristics in engineering drawings
7 Classification and Verification Modalities
8 Transition Scenario

2014-12 Complete revision

2016-11 "Applicable Documents" and "Edition" deleted
"Note: For ETO-Internal Use Only" added (ETN023)
Item 6.2 "Angabe der Anforderungen an das BM in technischen Zeichnungen" added

2017-07 Item 7., Column "Verification", paragraph "General", text changed to:
"Processes are monitored by means of statistical process control (SPC). Here, appropriate checking intervals must be defined, depending on the respective process capability."

2021-01 Scope limited to drawing specification

2022-06 Extension of the classification with IC and CC-R-ID

2023-05 Extension of the chapter “Categories of Special Characteristics”

4 Applicable Documents

The following documents are referenced in the text in such a way that some or all of their content constitutes requirements of this document.

ETN012:2012-10 Machine and Process Capability

ETN021:2021-01 Measurement System Analysis

ETN023:2023-07 FMEA Guideline

5 Definition of Terms and Abbreviations

The terms and abbreviations used in this document are defined directly in the chapter.

6 Marking of Special Characteristics in Engineering Drawings

In engineering drawings, the special characteristics must be marked, giving them a distinct consecutive numbering which starts at "1" for each material number.

This consecutive numbering shall be established when creating the drawing.

If a special characteristic is eliminated, the corresponding consecutive number shall be eliminated, too. This does not affect the other consecutive numbers of the same material number => consecutive numbers shall not be changed.

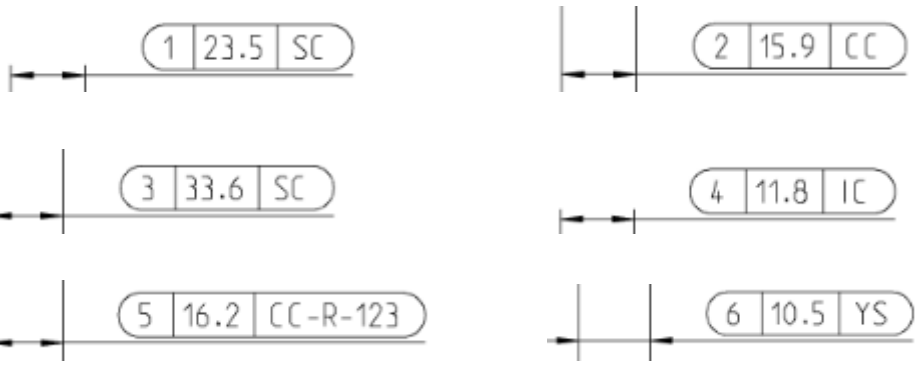
In the drawing, the special characteristics shall be marked with below oval –"Zeppelin symbol"

The requirements on the capabilities of the special characteristics shall be declared in a separate table on each drawing.

On the engineering drawing, the designer shall document the requirements on the capabilities of the special characteristics in a table, as laid down by Q-008-Process Capabilities Customer.

Example:

Dimensions as special characteristics in the engineering drawing.



Examples of capability requirements:

1	cmk ≥ 1,67; ppk ≥ 2,00; cpk ≥ 1,67; %GRR ≤ 10; cgk ≥ 1,33
2	cmk ≥ 1,67; ppk ≥ 1,67; cpk ≥ 1,33; %GRR ≤ 10; cgk ≥ 1,33
3	cmk ≥ 1,67; ppk ≥ 1,67; cpk ≥ 1,33; %GRR ≤ 10; cgk ≥ 1,33
4	No capability required
5	cmk ≥ 1,67; ppk ≥ 1,67; cpk ≥ 1,33; %GRR ≤ 10; cgk ≥ 1,33

7 Categories of Special Characteristics

7.1 Potential Critical Characteristics (YC)

YC characteristics are characteristics of components, functions and system characteristics non-compliance with which may lead to imminent danger to life and limb (Severity = 10).

This includes non-compliance with legal and official requirements (Severity = 9).

7.2 Potential Significant Characteristics (YS)

YS characteristics are characteristics of important functions of components and system characteristics non-compliance with which may lead to high warranty costs (e.g., rework, rescission, abatement, compensation). This includes important functional requirements, in particular with critical manufacturing processes, like for instance, tolerances, manufacturing-related requirements and the so-called 4F (Form, Fit, Function, perFormance). (Severity = 7 or 8).

7.3 Critical Characteristics (CC)

Critical characteristics are characteristics of components, functions and system characteristics non-compliance with which lead to imminent danger to life and limb (Severity = 10).

This includes non-compliance with legal and official requirements (Severity = 9).

7.4 Significant Characteristics (SC)

Significant characteristics are characteristics of components and system characteristics non-compliance with which may lead to high warranty costs (e.g., rework, rescission, abatement, compensation). This includes important functional requirements, in particular with critical manufacturing processes, like for instance, tolerances, manufacturing-related requirements and the so-called 4F (Form, Fit, Function, perFormance) (Severity = 7 or 8).

7.5 Important Characteristics (IC)

Important characteristics are characteristics of individual parts or assemblies which may negatively influence a process step or subsequent process steps at ETO (e.g. scrap or system availability). Capabilities do not have to be demonstrated. The retention obligation is subject to the legal requirement (Severity =1 – 6).

7.6 FuSa – Functional Safety (CC-R-ID)

Characteristics which stem from functional safety and are entered in the FMEA with a requirement **ID** shall be marked as user-defined characteristics with the tag "CC-R-ID“. This ID shall be given a number from the customer specification (ASIL classification).

8 Changing Former Special Characteristic Designations

The previously used German designations for special characteristics, i.e. HM, HMK, HML etc., shall be changed over to the now valid designations Critical Characteristic (CC) and Significant Characteristic (SC) when a drawing is altered.

There is no translation table explaining which of the now valid designations correspond to the former designations.