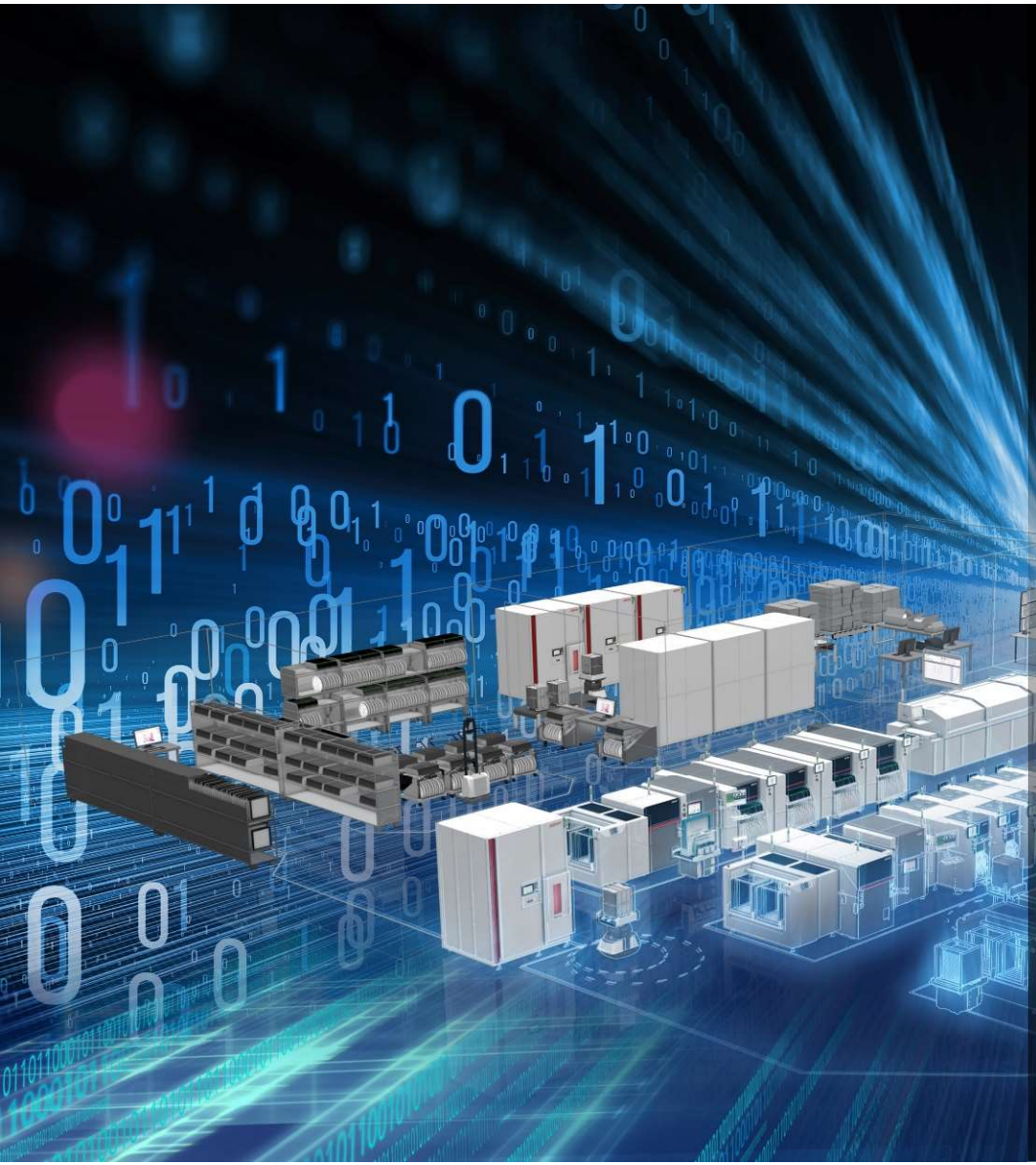

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Supplier Information

Adaptation of general tolerances and the drawing frame for ASMPT drawings

December 2024

ISO GPS @ASMPT - Motivation

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WHY do we need to optimize our drawing frame?

Align site-specific requirements and define globally harmonized drawing border for ASMPT-SMT

- Our shared suppliers should see no difference between drawings from any of our sites
- Provide unambiguous information on drawings for R&D, SCM, SQ and suppliers
- Avoid unnecessary and redundant information for better transparency and efficiency

Update to our implementation of ISO GPS

- Since the introduction of ISO GPS @ASMPT in 2014, major changes have occurred
- Drive a common approach to (general) tolerancing to ISO standards
- Capture design intent with the minimum cost impact

ISO GPS @ASMPT

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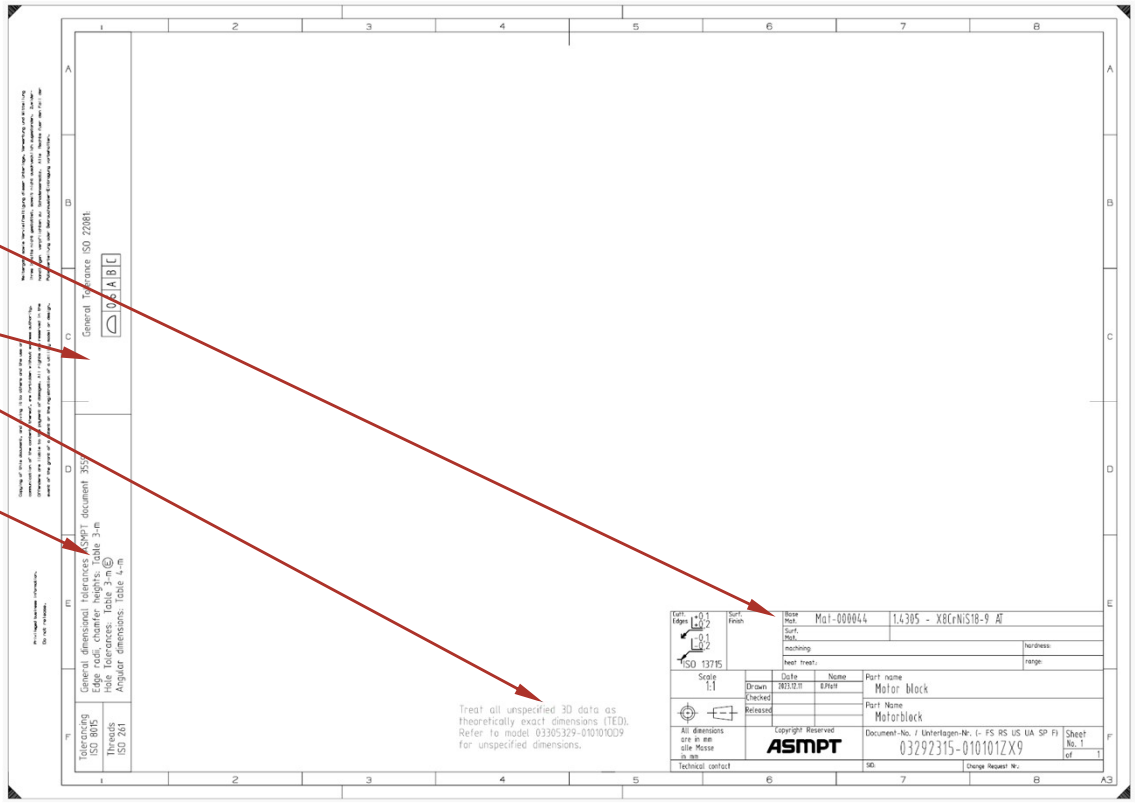
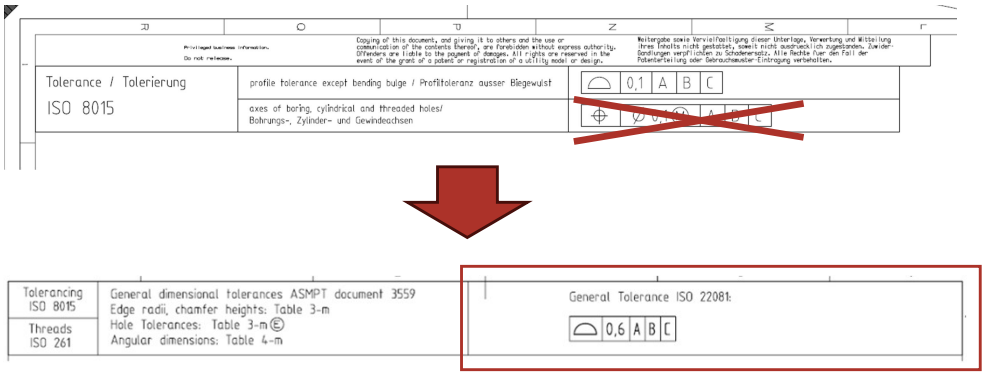
Harmonized Drawing Border (Oct 2024) - overview

- **ISO GPS (ISO 8015) will remain the leading standard for our drawings**
- **Reduced title block (unilingual)**
- **Updated general tolerancing**
- **Reference to 3-D model (sticker)**
- **General dimensional tolerances**





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General Geometrical Specification

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General Geometrical Specification

Changes to the general geometrical tolerance

- Applicability defined by the rules of ISO 22081
- Ambiguities have been eliminated
- The tolerance value that appears most frequently on a drawing is no longer applicable
- The general tolerance reflects the accuracy which can reliably be manufactured and checked without special measures

Tolerance Values

- No suitable ISO standard to date → Values have been derived from ISO 2768-1/DIN2769
- Single value accounts for the entire part geometry
- Unique tolerance value: determined by part size and tolerance class
- Sheet metal parts: higher tolerances due to manufacturing process
- Manufacturing processes with dedicated tolerancing standards (future work)

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General Geometrical Specification

Applicability according to the rules of ISO 22081, 5.2

The general geometrical specification applies to each integral feature independently, unless:

1. the integral feature has a size specification
2. the integral feature has an individual geometrical specification
3. datum features used in the datum section of the general geometrical specification
4. integral features with simplified representation and not included in the CAD model (e.g., edges, fillets, threads, undercuts)

User Training General Tolerancing

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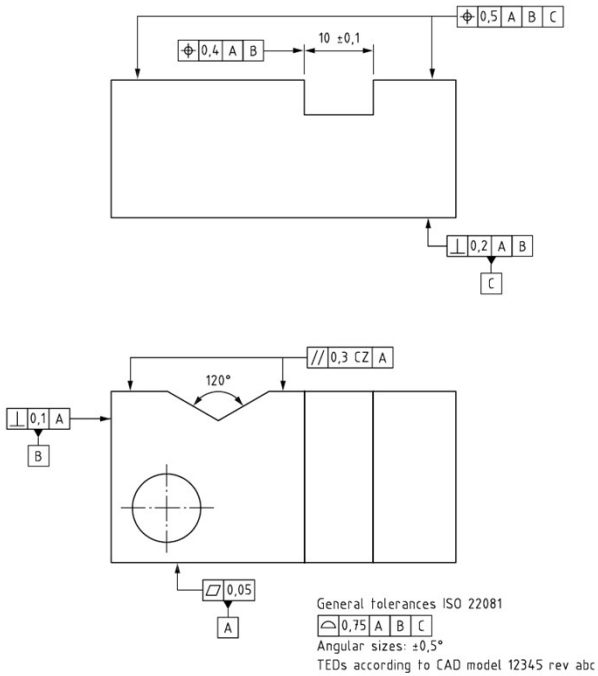
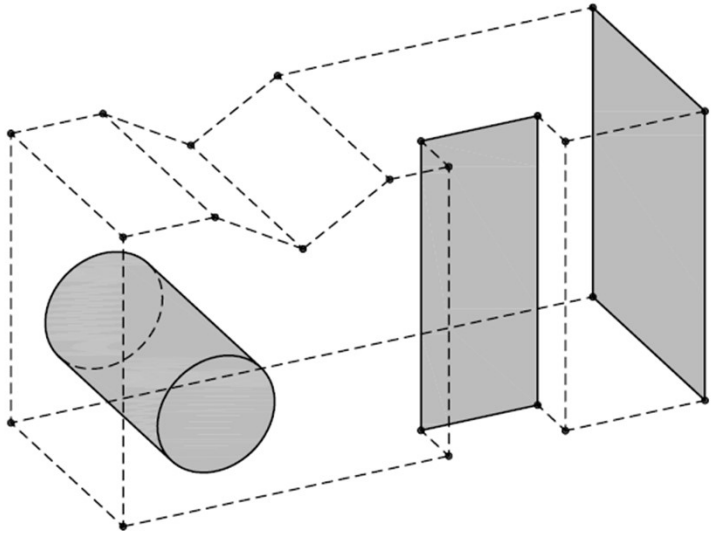
General Geometrical Specification

Drawing indications



[source: ISO 22081]

Features with general geometrical tolerance



[source: ISO 22081]

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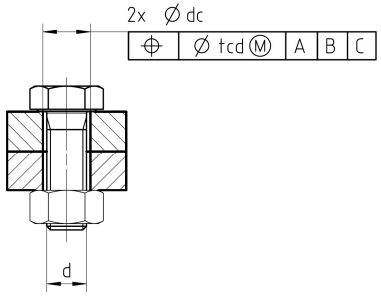
Positional Tolerance



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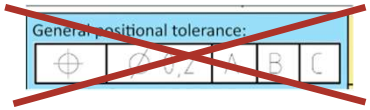
Positional Tolerance

The General Positional Tolerance has been omitted



- Not covered by ISO 22081 or any other ISO standard
- No functional justification
- Maximum material condition Ⓜ is advantageous for clearance holes but cannot be used with threaded holes

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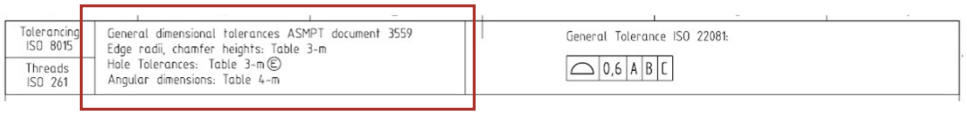
General Dimensional Specification



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General Tolerances – General Dimensional Tolerance

General dimensional tolerance

- Edge radii and chamfer heights: Table 3
- Holes : Table 3 or ISO 286
- Angular dimensions: Table 4

General dimensional tolerances ASMPT guideline 3559
Edge radii, chamfer heights: Table 3-m
Hole tolerances: H13 Ⓔ
Angular dimensions: Table 4-m

No general recommendation of two-point dimensions

- Non-functional features
- Secondary features

Table 3: General tolerance values for holes, edge radii and chamfer heights

Nominal dimensional range [mm]						
from		0.5[a]	3	6	30	120
up to		3	6	30	120	400[b]
Tolerance class		**General tolerance values for holes, edge radii and chamfer heights [mm]**				
f	fine	±0.1	±0.25	±0.5	±1	±2
m	medium	±0.2	±0.5	±1	±2	±4
c	coarse	±0.4	±1	±2	±4	±8
[a]	For nominal dimensions ≤0.5 mm the permissible deviation shall be ±10% of the indicated nominal dimension.					
[b]	Individual tolerances shall be used for indicated nominal dimensions >400 mm.					

Table 4: General tolerance values for angular dimensions

Nominal length of the shorter side of the angle concerned [mm]						
from		0	10	50	120	400
up to		10	50	120	400	—
Tolerance class		**General tolerance values for angular dimensions**				
f	fine	±1°	±0°30′	±0°20′	±0°10′	±0°5′
m	medium	±1°	±0°30′	±0°20′	±0°10′	±0°5′
c	coarse	±1°30′	±1°	±0°30′	±0°15′	±0°10′


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Thank You!
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