



## Potential areas of future collaboration

# Geometric Dimensioning and Tolerancing

The logo for E-Business SSG (Small Business Systems Group) features the text 'E-Business' in a blue, sans-serif font above the text 'SSG' in a larger, bold, blue, sans-serif font. A blue arrow points from the text towards the top right corner of the slide.

E-Business  
SSG

- 3D Model Based Definition and MB Manufacturing relies increasingly on 3D Geometric Dimensions and Tolerancing (GD&T) and 3D symbols
- Development of GD&T standards for designers mainly done in 2 organizations:
  - International Standard: ISO/TC 213 (ISO 1101, ISO 5459, ...) & ISO/TC 10 (ISO 16792)
  - US standard: ASME (Y14-41, Y14.5, etc )
- Exchange and long term archiving of 3D MBD including GD&T is specified by ISO STEP AP242, and by other related 3D visualization standards (ISO 14306, PRC, etc)
- Implementation of STEP AP242 interfaces by CAD vendors is done according to ASME or ISO GD&T standards, with in some cases, differences:
  - Drawbacks: Potential conflict of priorities - additional costs - additional delay
  - Lack of interoperability of 3D models done with ASME GD&T and with ISO GD&T
- Opportunities to ensure the coordination / joined development of new GD&T and 3D Symbols for the American and European A&D industries
  - Examples: new symbols for welding, for Additive Manufacturing, etc



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- Functional requirements for next 5 years
- Short term:
  - Preparation of a report identification the main differences for GD&T and symbols between ASME and ISO standards
  - Consolidation of the identification of drawbacks for such differences
  - Proposal of an action plan to decrease / mitigate the risk
- Mid term:
  - Periodic coordination for Identification of projects for development of new GD&T or 3D Symbols for A&D
  - Support of action of coordination of harmonization between ASME standards and ISO standards for GD&T and 3D symbols

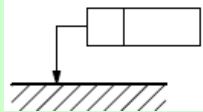


E-Business  
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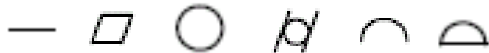
Main GD&T are common between the 2 standards:



Run - out



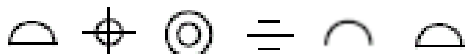
Form tolerance



Orientation tolerance



Local tolerance



Requirement, condition,...



...

## Example of GD&T only defined by ISO



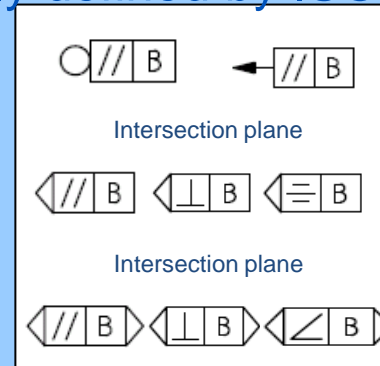
Reciprocity requirement



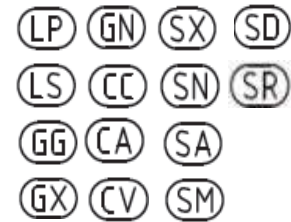
Envelope requirement



Median feature



modifier for a linear size



## Example of symbol only defined by ASME



Drill Depth



Counterbore



Countersunk



Spotface

## Example of GDT&T Not completely equivalent

ISO Unequally Disposed Tolerance Zone

UZ

ASME Unequal Bilateral Tolerance Zone

