

Introduction to Tolerance Stack-up Analysis methodology

- Importance of Tolerance Stack-up Analysis: Why, when and how
- Introduction of Two-Column method of doing stack-up analysis
- Introduction to Tolerance Stack-up Analysis:
 - GD&T stacks
 - Worst case GD&T stacks
 - Statistical tolerancing GD&T stacks: RSS and MRSS
- Methodical steps involved in any stack-up analysis:
 - Loop diagram creation
 - Universal sign language of tolerance stack-up analysis
 - Identification of correct dimensional contributors (vectors)
 - Correct stack table filling according to Two-column method
 - How to convert and enter various geometric tolerances into the stack table

Assembly Level Stack-up Analysis

- Assembly stacks using coordinate dimensioning and tolerancing
- Assembly stacks using position:
 - Floating fastener assembly stack-up
 - Fixed fastener assembly stack with projected tolerance zone modifier
- Assembly stack using bi-lateral profile
- Assembly stack using total runout
- Assembly stack using combined geometric tolerances
- Stack using form controls applied to a feature
- Stack using orientation controls applied to a feature without size
- Stack using orientation controls applied to a feature of size (FOS)
- Introduction to Statistical Tolerancing:
 - RSS (Root Sum Square) stack concept
 - MRSS (Modified Root Sum Square) stack concept
- Comparison between Worst-case method, RSS & MRSS methods
- Assembly stack using statistical tolerancing

Part Level Stack-up Analysis

- Part stack using bi-lateral profile
- Part stack using bi-lateral profile with datum feature shift (MMB on datum)
- Part stack using unilateral profile
- Part stack using circular runout
- Part stack using total runout
- Part stack using concentricity tolerance
- Part stack using symmetry tolerance
- Part stacks using position with bonus (planar & RFS datums)
- Part stacks using position with bonus tolerance (MMC & MMB on datum)
- Part stacks using position with datum feature shift tolerance
- Part stacks using composite position tolerances
- Part stack using composite profile tolerances
- Part stack using combined geometric tolerances
 - Position in upper frame & perpendicularity in lower frame
 - Profile in upper frame & parallelism in lower frame
 - Profile in upper frame, parallelism in middle frame & flatness in the lower frame
- Part stack using two segment (combined) position tolerances
- Part stack using simultaneous requirement
- Part stack using separate requirement
- Bonus & datum feature shift chart
- Part stack using form controls applied to a feature
- Part stack using orientation control applied to a feature without size
- Part stack using orientation control applied to a feature of size (FOS)

Contact

Mr. Swapnil Gujarathi

Senior GD&T Trainer: ASME-GD&T & ISO-GPS
Certified ASME GD&T Senior-Level Professional

CADSaga Consultancy Services

7, Vihar Sankul, Tidake Nagar,
Untwadi, Nashik - 422009

 +91 90110 81591

 swapnil@cadsaga.com

 www.cadsaga.com

Thank You !