

The Challenge

Since the inception of CAD, OEMs have increasingly sought a comprehensive 'Golden Record' that aligns design, manufacturing, and quality requirements. However, this process has introduced several challenges:

1. Design vs Manufacturability:

Designers create CAD models with specific features, but these models often require interpretation.

2. Data Interpretation:

Manufacturing relies on CAD "viewers" to interpret GD&T data, but lack of standardized formats results in inconsistent data processing and lost information.

3. Manufacturing Models:

Manufacturers often need to augment product-level documents, creating "manufacturing-level" models that become invisible silos, inaccessible to buyers.

4. Inspection & Compliance Models:

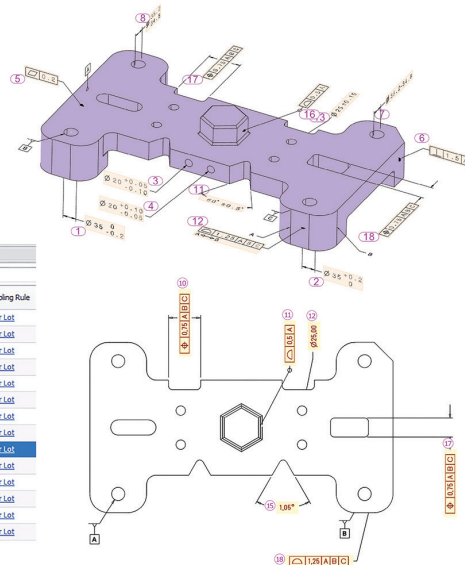
Multiple measuring devices and non-standardized interpretations add layers of complexity, leading to inefficiencies.

5. FAI & Incoming Inspection Bottlenecks:

Upon product receipt, OEMs conduct custom inspections that may diverge from the initial specifications, adding more complexity and potential for error.

The result? Wasted resources, inefficiencies, and potential risks to both businesses and end-users.

| Reviewed | Dim # | Dwg. Zone | Type | Requirement | Nominal | Upper Tol | Lower Tol | Tol Type | Units | USL | LSL | Sampling Rule |
|-------------------------------------|-------|-----------|------------------|--------------------|---------|-----------|-----------|----------|-------|--------|--------|---------------|
| <input type="checkbox"/> | 1 | S1 | Diameter | $\phi 35.00$ | 35.00 | +0.20 | -0.20 | General | MM | +35.20 | +34.80 | 1 per Lot |
| <input type="checkbox"/> | 2 | S1 | Flatness | $\sqrt{0.12}$ | 35.00 | +0.2 | -0.0 | As Limit | MM | +0.2 | -0.0 | 1 per Lot |
| <input type="checkbox"/> | 3 | S1 | Diameter | $\phi 35.00$ | 35.00 | +0.20 | -0.20 | General | MM | +35.20 | +34.80 | 1 per Lot |
| <input type="checkbox"/> | 4 | S1 | Diameter | $\phi 20.00$ | 20.00 | +0.05 | -0.10 | General | MM | +20.05 | +19.90 | 1 per Lot |
| <input type="checkbox"/> | 5 | S1 | Diameter | $\phi 20.00$ | 20.00 | +0.10 | -0.05 | General | MM | +20.10 | +19.95 | 1 per Lot |
| <input type="checkbox"/> | 6 | S1 | Perpendicularity | $\sqrt{0.15A}$ | 20.00 | +1.5 | -0.0 | As Limit | MM | +1.5 | -0.0 | 1 per Lot |
| <input type="checkbox"/> | 7 | S1 | Diameter | $\phi 35.00$ | 35.00 | +0.00 | -0.20 | General | MM | +35.00 | +34.80 | 1 per Lot |
| <input type="checkbox"/> | 8 | S1 | Diameter | $\phi 35.00$ | 35.00 | +0.20 | -0.00 | General | MM | +35.20 | +35.00 | 1 per Lot |
| <input checked="" type="checkbox"/> | 10 | S2-A4 | True Position | $\sqrt{0.12A B C}$ | 35.00 | +0.75 | -0.00 | As Limit | MM | +0.75 | -0.00 | 1 per Lot |
| <input type="checkbox"/> | 11 | S2-B5 | Surface Profile | $\sqrt{0.15A}$ | 35.00 | +0.5 | -0.0 | As Limit | MM | +0.5 | -0.0 | 1 per Lot |
| <input type="checkbox"/> | 12 | S2-B5 | Diameter | $\phi 25.00$ | 25.00 | +0.15 | -0.15 | General | MM | +25.15 | +24.85 | 1 per Lot |
| <input type="checkbox"/> | 15 | S2-C5 | Angular | 1.05° | 1.05 | +0.01 | -0.01 | General | DEG | +1.06 | +1.04 | 1 per Lot |
| <input type="checkbox"/> | 17 | S2-C7 | True Position | $\sqrt{0.15A B C}$ | 35.00 | +0.75 | -0.00 | As Limit | MM | +0.75 | -0.00 | 1 per Lot |
| <input type="checkbox"/> | 18 | S2-E6 | Surface Profile | $\sqrt{0.15A B C}$ | 35.00 | +1.25 | -0.00 | As Limit | MM | +1.25 | -0.00 | 1 per Lot |



The Solution: IM / 360 Core and 360 HUB

High QA's 3D MBD solution enables a seamless, CAD-originated **'Golden Record'** throughout the entire production process:

1. One-Click Import, Ballooning & GD&T Extraction

OEMs and manufacturers can import models from any source (Catia, Pro E, Siemens, SolidWorks) with PMI data extracted automatically, creating a "Bill of Characteristics." This breakthrough eliminates the need for viewers and manual interpretation.

2. Universal ID Creation

Each feature in the Bill of Characteristics is assigned a "Universal ID," ensuring accurate connectivity to measurement systems without redundant data entry.

3. Bridging the Product and Manufacturing Levels

Built-in tools provide connectivity between the product-level model and manufacturing-level requirements, ensuring a seamless flow of data through production and quality checks.

4. Real-Time Quality Reporting with IM / 360 Core

Plan inspections, collect measurements, and report quality data in real time, integrating seamlessly with PLM, ERP, and more.

5. Supplier Collaboration with 360 HUB

Use 360 HUB to share projects and data with suppliers, ensuring everyone remains aligned on the latest specifications and revisions.

| OEM Benefits | Manufacturers Benefits |
|--|--|
| <ul style="list-style-type: none"> ▶ OEMs can remove waste from their supply chains ▶ Less interpretation and frustration, and fewer negotiations ▶ Measure supplier performance in real time (e.g., FAI, PPAP, Cpk) ▶ Reduce time to market for their products ▶ Reduce scrap, NCRs, RMAs, and more ▶ Reduce supplier validation costs (travel, lodging, time away) | <ul style="list-style-type: none"> ▶ Manufacturers can remove risks and costs ▶ Align with strategic OEMs ▶ Remove guessing and interpretations ▶ CAD agnostic – no need for multiple licenses ▶ Faster shipping by removing bottlenecks in Quality or Production |

