

Analysis on the Need of Engineering Drawing and Feasibility Study on 3D Model Based Engineering Implementation

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Abstract : Engineering drawings these days play an important role in every part of an industry. By and large, Engineering drawings are influential over every phase of the product development process. Traditionally, drawings are used for communication in industry because they are the clearest way to represent the product manufacturing information. Until recently, manufacturing activities were driven by engineering data captured in 2D paper documents or digital representations of those documents. The need of engineering drawing is inevitable. Still Engineering drawings are disadvantageous in re-entry of data throughout manufacturing life cycle. This document based approach is prone to errors and requires costly re-entry of data at every stage in the manufacturing life cycle. So there is a requirement to eliminate Engineering drawings throughout product development process and to implement 3D Model Based Engineering (3D MBE or 3D MBD). Adopting MBD appears to be the next logical step to continue reducing time-to-market and improve product quality. Ideally, by fully applying the MBD concept, the product definition will no longer rely on engineering drawings throughout the product lifecycle. This project addresses the need of Engineering drawing and its influence in various parts of an industry and the need to implement the 3D Model Based Engineering with its advantages and the technical barriers that must be overcome in order to implement 3D Model Based Engineering. This project also addresses the requirements of neutral formats and its realisation in order to implement the digital product definition principles in a light format. In order to prove the concepts of 3D Model Based Engineering, the screw jack body part is also demonstrated. At ZF Windpower Coimbatore Limited, 3D Model Based Definition is implemented to Torque Arm (Machining and Casting), Steel tube, Pinion shaft, Cover, Energy tube.

Keywords : engineering drawing, model based engineering MBE, MBD, CAD

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