A Study of Knowledge Base System for Inner Thread Plastic Mold Design

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ABSTRACT

Today, the integrated plastic injection industry have been combined the computer aided design (CAD), computer aided manufacture (CAM) and computer aided engineering (CAE) with plastic injection technical to apply in the mold design level. Base on the field of plastic products are so broadly, a study of this research is to focus on design knowledge of cap with inner thread products and mold manufacture in SolidWorks environment. According to result of foreign papers from the Internet, the authors mentioned the main conceptual and principle which it can apply to the system buildup. Besides, a study of stress in static state of descript combined between two threads is also involved a part of this research. Through results and conclusions, the designer can get a reasonable value to apply in the design phase. In addition, the most important essence in this paper is a methodology of linkage relationship between parameter feature and system. One component have to consider into the process of building is the form of math relation for product and mold design. The purpose of form is to let whole mold be changed with product dimensions. Finally, base on the common language infrastructure and platform created, all of engineers can understand the mold structure and determine the mold-base dimensions refer to the standard catalogue.

Keywords : Words：SolidWorks, parameter feature, mold-base.

Table of Contents

REFERENCES

[1] Ticona GmbH Kelsterbach, Plastic parts with integrally molded threads, www.ticona.com,2004。

[2] Engineering Polymers: Part and Mold Design, Thermoplastics, Design Guide，Bayer Corporation，2000。

[3] R.I.M. Young, O.Canciglieri. Jr and C. A. Costa, Manufacturing information interactions in data model driven design, Proc Instn Mech Engrs, Vol. 213B, pp.527-532, 1999。

[4] L. Kong, J. Y. H. Fuh and K. S. Lee, Auto-generation of patch surface for injection mould design, Proc Instn Mech Engrs, Vol. 215B, pp.105-110, 2001。

[5] G. Britton, T. S. Beng and Y. Wang, Virtual concurrent product evelopment of plastic injection moulds, Proc Instn Mech Engrs, Vol. 214B, pp.165-168, 2000。

[6] C. A. Costa and R. I. M. Young, Product range models supporting design knowledge reuse, Proc Instn Mech Engrs, Vol. 215B, pp.323-337, 2001。

[7] W.M.Chan,L.Yan,W. Xiang and B.T. Cheok, A 3D CAD knowledge-based assisted injection mould design system, Int J Adv Manuf Technol 22, pp.387-395, 2003。
[8] Lih-Sheng Turng and Debra DeAugistine, A Web-Based Knowledge Management System for the Injection Molding Process, Plastics Engineering, www.4spe.org, 1999。
[9] Kikuo Fujita, Takafumi Nakayama and Shinsuke Akagi, Integrated Product Design Methodology For Aesthetics, Functions And Geometry With Feature-Based Modeling And Constraint Management, Proceedings of ICED99, Vol. 3, pp.1753-1756, August 1999。
[10]Young-Sheng Ma, Shu Beng Tor and Graeme A. Britton, The development of a standard component library for plastic injection mould design using an objectoriented approach, Int J Adv Manuf Technol 22, pp.611-618,2003。
[11] GE Engineering Thermoplastics Injection Molding Processing Guide,GE Plastic,1998。
[12] 張善旺，類似品衝壓模具設計變更系統，大葉大學機械工程 研究所碩士論文，2004 年七月。
[13] 林龍震，Pro/Moldesign Wildfire 2.0，金禾資訊公司，2005 年1 月。
[14] 陳徹工作室，VISUAL BASIC 資料庫程式設計實務，松崗電腦1999 年。
[15] 標準塑膠模底座型錄，鴻鑫模座股份有限公司，1999 年。
[16] 張永彥，塑膠模具設計學，全華科技圖書股份有限公司，94年1 月。
[17] 林震、劉興華、簡守謙、張振龍，機械設計，高立圖書有限公司，民國91 年3 月。
[18] 周哲義，材料性質對螺桿與螺母之磨潤行為的影響，國立中山大學機械工程研究所碩士論文，民國90 年6 月。
[19] 瓶蓋模具技術，高思達公司網站， http://www.gosder.com [20] 扭力計產品種類與扭力值，電子五金工具網，http://www.tools168.com.tw [21] 台化聚丙烯塑膠粒物性彙總表，台化公司網站， http://www.fcfc.com.tw [22] 李榮華，機件原理II，龍騰文化事業公司，民國90 年12月。
[23] 王如鈺、王雲峰，齒輪原理概要，憬藝企業有限公司，民國91 年2 月。
[24] 螺牙製品脫模原理，iCAx(CAD/CAM/CAE)綜合資訊網， http://icax.cn/ut/attach/2003/12/19/1412170-2-embed.gif [25] Ching-Chih Lee and James F.Stevenson, Optimized Runner Systems for Multicavity Injection Molds,PartI:Runner Sizing,Polymer Engineering and Science,Vol.39,No.2,pp.375-384,1999。