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The High Computer Technology Application Study about the Daily-Use Ceramic Products Design

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Abstract

As the support of the daily-use ceramic products design by using digital development platform, nowadays advanced digital technology — 3D print technique can directly design and develop the daily-use ceramic products. The design software illustrates three-dimensional model and convert it to the appropriate number format, then this hi-tech print technology can make the real full scale mock up. Use this digital way to present the daily-use ceramic products, to create a graphic database, and eventually establish a systematic research and development about the daily-use ceramic products design.

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China is the birthplace of ceramics, with the development of ceramic history for thousands of years. The Chinese characteristics ceramic industry derivative thereof, as the treasure of the Chinese nation, which made indelible contributions to the ceramic development of the world. Design development is an important element of daily-use ceramic production. It's a repeatedly correction and a constant improvement process. But according to the present development, daily-use ceramic is still of long cycle, which holds a lot of materials, with low precision and has been polluted much. So We should speed up the reform this situation in direction of “ save energy and pollute less, quick and efficient, high value-added, high precision”.

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1. Advantage of high computer technology

High computer technology is the main prerequisite for the construction of a digital development platform — engineering software (Auto CAD, Pro/E, UG), 3D tactile design system (FreeForm) and image manipulation software (Photoshop). Those high-tech software cooperate with 3D print high rate forming technique to reform traditional research and development way of daily-use ceramic products design, to present the original look of ceramic products. The targeted client can directly check the effect picture which designed by software, and the exemplar which made by 3D print machine. This step has a direct effect on the decision of product development. The obtained three-dimensional model convert to format STL, IGES, STEP, then those three-dimensional data will be stored by daily-use ceramic graphic data base, convenient for design improvement and extension. Before the production of ceramic products, through the announce of three-dimensional model we could get the feedback of client, test the acceptability. Easy to optimize and refine the product before we produce it. High-tech computer technology improve the speed of 50%-70% on development of ceramic products, shorten the development cycle, so that enterprises could lance the product into the market as soon as possible. Grasp the market. Help the ceramic product design and development toward the high-end, high-speed, green, environmental protection and sustainable development.

2. The digital presentation of daily use ceramic products design

For the traditional daily use ceramic products design, sketch, drawing, printing plate making, those processes are all made by designers. Sketches drawn work is numerous and trivial, repetitive patterns lead to repeat operation, longer design cycle. Daily use ceramic products design combine digital technology to make the designers think in mode of digital, With the help of virtual presentation technology, present realistic visual simulation effect of products in the stage of development. Virtual data model -- repeatable operation, easy to modify, and could improve production efficiency. So it is necessary to create a virtual development platform for daily use ceramic products, to establish a set of virtual graphics database for daily use ceramic products, convenient for develop a virtual world of multi dimension.

2.1. Virtual reconstruction of daily-use ceramic products design

Digital technology in daily-use ceramic products design, on the one hand, as shown in the Figure 1, three-dimensional rendering products form can detect problems from design, and can modify the synchronization results in a timely reproduced. The other hand, draws are much more refined and accurate by using software, simulation graphics rendering such as top, side, and head-figure drawing for reference size ratio accurately and avoid the difference between design and production. The introduction of digital technology allows daily-use ceramic products design facilitate the creation of a virtual graphics database, and the contact of each link more closely. You can always allocate and modify, at the same time, the multiple process synchronized working mode ensure the design process to the maximum extent efficient and systematic. The software can complete the basic free surface modeling, and present the complex artistic effect, like carving etc. As shown in Figure 2, you can use FreeForm to complete. Provides a tactile sensation for designers in the process of product modeling. Benefit for modeling on free surface, virtual modeling environment is more close to the real environment. The use of virtual reality mud instead of mud, save the casting, trimming and carving processes. Avoid unnecessary duplication of work and material waste, Make the design process become healthy and environmental, reduce the cost. In the process of product development,

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