Method of Humanity Design for Food Machinery

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Abstract: In view of the humanity design problem of the existing food machinery, the author states her own personal design idea. So the author makes an exploration on method of humanity design for components of food machinery, including the monitor, the console, the control device and protection device. At last, several key points that must be followed by the humanity design of the color of food machinery have been pointed out.

Keywords: Color design, food machinery, humanity design

INTRODUCTION

It is can be discovered from the successive international exhibition of food machinery that the food machinery designed excellently, has already got away from the ice-cold and mechanical “not friendly” feature and got away from the characteristic of disobeying person's nature and becomes more friendly, more sweet and more according with physiology and mental need of modern people. It is inevitable trend that food machinery develops facing humanization direction (Yang et al., 2003). Therefore, studying the method of humanity design for food machinery is a topic which has important theoretical meaning and realistic meaning (Jiang, 2011).

Though our food machinery already has a very big development and in the function design, has gradually approached the advanced level in the world (Jiang and Du, 2012). But in the humanization design, our food machinery still exists a lot of problems, for example, neglecting humanized require for the modeling design of food machinery, so that our food machinery exists numerous problems, such as the body is huge and bulky, the color is monotonous and dull, the display device is not easy to observe, the control system lacks man-machine nature and is inconvenient to operate (Jiang, 2013). Although many food machineries have the same function as the foreign ones, they could not reach the same market competition ability (Liang, 2003). Therefore, studying the method of humanity design for food machinery has already become an urgent problem in the manufacturing industry of food machinery (Jiang and Cheng, 2010).

The main purpose of the research is to investigate an effective method of humanity design for food machinery, thereby raising the external appearance quality and pleasant of food machinery, strengthening additional value and whole shape effect of product, satisfying the demand of market competition and creating higher economic efficiency.
be within the area of seeing and reaching. Therefore, the
design of console height and work zone should accord to
the person's size parameter and machine mechanics
parameter, sufficiently considering the influence of food
machinery upon the person, reasonably choosing various
parameter and making person easy to operate, not tired
and easy to observe process situation, which builds up a
kind of best working environment.

Design of control device: The control device which
converts the operator’s output signal into the machine’s
input signal is a device that transports the person’s
information to the machine, in order to adjust and
change the machine status. Therefore, the design of
control device firstly should sufficiently consider the
figure, the physiology the mental state, the physical
strength and the ability of operator. The size and shape
of control device should adapt to the sport characteristic
of the person's hand or feet and the strength scope
should be placed in the best scope of human body
strength, could not outrun the extreme limit t of human
body strength. The important or using frequently control
device should arrange in the space scope where the
person’s responding is the most sensitive, the operation
is the most convenient and the body could attain. The
design of control device still needs to consider enduring
nature, revolve speed, external appearance and energy
consuming. The control device is an important
constituent part in man-machine system, of which the
design whether proper, relates to the normal safety
movement of the whole system (Zhan, 1999), as shown
in Fig. 1.

Design of protection device: Protection device, which
exclusively provides a safe protection by the object
obstacle, which includes machine hull, cover, screen,
door, lid, close type device and others, is a constituent
part of food machinery. The protection device could be
used alone, as well as be used through uniting with
allied lock device together. If used alone, only when
closed, can it have a protection function; if used through
uniting with allied lock device together, no matter what
positions, it could have a protection function.

Method of humanity design for the color of food
machinery: The color design is an important
constituent part of the modeling design of food
machinery, as color has more ocular, more strong and
more attractive magic power than the body. The color
could firstly influence the person's sense organs than
the body, moreover, that could raise operator
recognizing and watching degree to some operation
controls, show instrument and appearance by making
use of vision recognizing effect and psychology of
color, sequentially, the function of these device could
be well developed and the mental request of operator
could be satisfied and the work efficiency could be
enhanced, in the meantime, the occurrence of
production could be also reduced. The humanity design
of the color of food machinery should follow the
following few important points.

Satisfy the request of man-machine coordination:
The color design of food machinery should well
embody the relation of man-machine coordination, so
as to make operator’s mood pleasant, have a sense of
security, don't easily produce fatigue and then attain to
the purpose of operating accurately and enhancing
production efficiency. For example, generally, the base
and body of food machinery properly adopt heavy and
solid deep color, not only bearing dirty but also making
person have the dependable sense of stability to
machine. The workbench, sliding plate and other parts
are the components that person usually use, which
properly adopt bright color, so as to get rid of depressed
feeling, satisfying the request of operating accurately
and man-machine coordination, as shown in Fig. 2.

Satisfy the request of environment and function: The
color should well express the function characteristic of
product and mutually coordinate with the use
environment. If the greasy dirt of use environment is
serious, usually the dark color is proper for bearing
greasy dirt. The color of the panel of food machinery
generally properly use the neutral base color of low
bright degree and low pure degree, contrasting with
component color, so as to enhance the vision
recognizing degree. The panel should have no strong
reflection and dazzle light. The color of display part
should be obvious and refreshing, but not dazzle eye.
The color of caution part should be fresh and gorgeous
to come into notice and the color of concealment part
should be quiet, as shown in Fig. 3.

Value the choice of tone: The choice of main tone of
food machinery is a problem of very importance; the
different tone will form different art effect. In matching
color of food machinery, having main tone can seem to
be to unify. The color is more little, the main body characteristic is more strong, the decorate characteristic is more good and the external form relation of food machinery is more unify. Contrary, the color matches more much, causing the color more disorderly, so that it is difficult to adjust generally, the main body characteristic is unclear and the harmonious effect is broken.

The choice of tone still needs to notice whether unique beauty. It needs to hold tight people's mental request for the color of food machinery, transform the tone of food machinery to make it produce an unusual attraction, in the meantime, increase the category of tone to satisfy people's fondness for different colors.

Moreover, the base, the body and other big pieces of food machinery are suit able to use a low pure degree color as them a in body color and use clear, elegant and clean color to unify overall situation to make the main tone definite. Using little area of high purity color to embellish to make the whole seem to be abundant, change and organic. The whole color generally uses monochrome or two sets of colors, not more than three sets of colors (Fu, 2002).

**Notice novelty:** The color design of food machinery should notice novelty and creativity to make it have vitality and more competitiveness. The color of food machinery not only can satisfy the request for appreciating beauty, under the particular condition, but also has strong influence, which can cause the transfer of people's emotion and interest to attract people's attention. For example, on an international industrial product exhibition, a red food machinery produced by some country appeared in the mechanical exhibition hall. Though the red is not the color that the food machinery consistently uses, the factory surprisingly adopted red color to decorate food machinery, causing the purchaser to crowd in its vicinity and then understood its function characteristics, which produced a surprising sensation effect and made its order enormously exceeded other nation. It is thus clear that the novelty of color design is very important.

**Match the new age request of appreciation beauty:** With the progress of the age, the improvement of people's living standard and the increase of cultural art accomplishment, the appreciating beauty standards also change. In a certain period or a certain region or world scope, some colors are popular of people and are extensively popular, becoming the "popular color". The "popular color" has a strong age characteristic, as a result, in a period, it become the color which is used extensively. The color design of food machinery also should sufficiently consider using the "popular color" to accord with the age request.

**RESULTS AND DISCUSSION**

With the development of the information age as well as the massive consumptions to the earth's resources, the modeling design of food machinery more and more pursues the ecology. It is under the ecological philosophy instruction that the ecology thought is utilized, the modeling design of food machinery is integrated the “human-machine-environment” system, both considers to meet the human's need and pays great attention to the ecological environment protection (Wei, 1999).

**CONCLUSION**

The above is the method about humanity design of food machinery which is presented by the author, aiming at our country current development condition of food machinery, combining the industrial design principle and esthetics rule which should be followed by the modeling design of food machinery. The author makes an exploration on method of humanity design for components of food machinery, including the monitor, the console, the control device and protection device. And then the humanity design of the color of food machinery have also been pointed out, hoping that the exploration would have a help towards accelerating the development of modeling design of our food machinery and hoping that the humanity design of food machinery should cause an extensive value and a related development work also should be energetically carried out.

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REFERENCES


