

**“MECHANISM OF HUMANITY RESEARCH DESIGN FOR NUMERICAL CONTROL  
MACHINE TOOL”**

**DR.SÁNCHIT PANDOU; SAMAN KAYUB**

**ABSTRACT:-**

In view of the humanity style drawback of the prevailing numerical management machine, the author states her own personal design idea. So the author makes an exploration of the method of humanity design for components of a numerical control machine tool, including the monitor, the console, the control device, and a protection device. At last, several key points that must be followed by the humanity design of the color of the numerical control machine tool have been pointed out.

**KEYWORDS:-**

Numerical Control Machine Tool, Humanity Design, Color Design.

**1. Introduction:-**

It is can be discovered from the successive international exhibition of a numerical control machine tool that the numerical management machine designed excellently tool machine has already got removed from the ice-cold and mechanical "not friendly" feature, and got away from the characteristic of disobeying person's nature, and becomes more friendly, sweeter, and more according to physiology and mental need of modern people. It is an inevitable trend that the numerical control machine tool develops facing humanization direction [1]. Therefore, studying the method of humanity design for a numerical control machine tool is a topic which has important theoretical meaning and real meaning.

**2. Gift Development State of Affairs Of Numerical Management machine:-**

Numerical management machine is one quite extremely effective automatic exactness machine that has been developed by comprehensively applying microelectronic technology, computer technology, automatic control, precision measurement, and machine

tool structure's newest achievements are one kind of model integration of machinery product [2]. In the trendy technique of manufacture system, the numerical control machine tool occupies an important status. And it has a very important effect on the manufacturing industry realizing flexibility automation, integration, and intellectualism. The numerical control technology and the numerical control equipment are the important foundation of the industry modernization. And whether this foundation is reliable directly affects a national economic development and therefore the comprehensive national strength, which relates to a nation's strategic status. Though our numerical management machine already encompasses a terribly massive development, and in the function the design has gradually approached the advanced level in the world. But in the humanization design, our numerical control machine tool still exists a lot of problems, for example, neglecting humanized require for the modeling style of numerical management machine, so that our numerical control machine tool exists numerous problems, such as the body is huge and bulky, the color is monotonous and dull, the display the device is not easy to observe, the control system lacks man-machine nature and is inconvenient to operate. Although many numerical control machine tools have the same function as the foreign ones, they could not reach the same market competition ability. Therefore, learning the strategy of humanity style for numerical control machine tool has already become an urgent problem in the manufacturing industry of the numerical control machine tool [3].

### **3. Methodology of Humanity style for parts of Numerical management machine:-**

The numerical management machine is that the manufacturer of the entire machines manufactures and therefore the most important constituent a part of the instrumentality producing trade. With the progress of the age and therefore the improvement of people's appreciation ability of the wonder, it presents a better request to numerical management machine tool, that is, the numerical management machine mustn't solely have sophisticated perform and smart function however even have a pleasing impact that makes the person feel work pleasant, decreases tired and pleases the attention. Therefore, the color and material alternative of the numerical management machine has an

effect on the whole feeling that the numerical management machine offers the person. the nice console style will build the operator quickly establish and cannot surface a slip-up operation and guarantee accuracy and potency, comfort and convenience of operation. the amount monitor place within the traditional scope of vision will raise the accuracy and potency of recognizing and reading, and might conjointly ease the vision wearing for an extended time watching.

### **3.1 Monitor style:-**

No matter what monitor, needs to realize to produce correct, fast and convenient vision data, of which the look ought to according to the person's vision characteristic, and conducts in keeping with the most effective observation fashion of person. Raising the accuracy and potency of recognizing and reading, the better vision distance of monitor and person is within the scope of 560 metric linear unit~750 mm, which may ease the vision wearing for an extended time looking and be simple to watch for the operator and might attain fast and correct management once delivering the knowledge to an individual.

### **3.2 Console-style:-**

In console style, the secret's that the arrangement of the console and monitor ought to be set within the normal scope of operation house, making certain that the operator may well observe the required monitor, operate all the controllers, and supply snug operation posture for long operation. Sometimes, the console additionally has operation space at the aspect before the operator, definitely of these districts got to be at intervals the area of seeing and reaching. Therefore, the look of console height and work zone ought to accord to the person's size parameter and machine mechanics parameter, sufficiently considering the influence of numerical management machine upon the person, fairly selecting numerous parameter and creating person simple to work, not tired and simple to watch method scenario, that builds up a form of best working surroundings.

### **3.3 style of management Device:-**

The management device that converts the operator's signaling into the machine's signal may be a device that transports the person's data to the machine, so as to regulate and alter the machine status. Therefore, the look of management device first ought to sufficiently think about the figure, the physiology of the status, the physical strength and therefore the ability of the operator. the dimensions and form of management device should adapt to the game characteristic of the person's hand or feet, and therefore the strength scope ought to be placed in the best scope of bod strength, couldn't run the acute limit t of bod strength. The important or victimisation oft management device ought to organize within the area scope wherever the person's responding is that the most sensitive, the operation is that the most convenient, and therefore the body may attain. The design of the management device still has to think about enduring nature, revolving speed, external look, and energy consuming. The management device is a vital constituent half within the man-machine system, of that the look whether correct, relates to the conventional safety movement of the full system [4].

### **3.4 style of Protection Device:-**

Protection device, that completely provides safe protection by the item obstacle, which incorporates machine hull, cover, screen, door, lid, shut kind device, and others, may be a constituent a part of the numerical control machine. The protection device might be used alone, furthermore as be used through uniting with allied lock device along. If used alone, only if closed, will it have a protecting function; If used through uniting with allied lock device along, regardless of what positions, it may have a protection function.

### **4. methodology of Humanity style for the color of Numerical management ma-**

**chine:-** The color style is a vital constituent a part of the modeling style of numerical management machine tool, as a color has a lot of ocular, a lot of robust and a lot of enticing magic power than the body. the color may firstly influence the person's sense of organs than the body, moreover, that might raise operator recognizing and observance degree to some operation controls, show instrument and look by creating use of vision recognizing result and psychological science of color, consecutive, the perform of this

device might be well developed, and therefore the mental request of the operator might be happy and therefore the work potency might be increased, in the in the meantime, the incidence of production might be additionally reduced. The humanity style of the color of the numerical management machine ought to follow the subsequent few small print.

#### **4.1 Satisfy the Request of Man-machine Coordination:-**

The color style of a numerical management machine ought to well embody the relation of man-machine coordination, thus on create associate operator's mood pleasant, have a way of security, do not simply manufacture fatigue, and then attain to the aim of operative accurately and enhancing production potency. as an example, generally, the bottom and body of numerical management machine properly adopt serious and solid deep color, not only bearing dirty but also making a person have a dependable sense of stability to the machine. The workbench, slippery plate and alternative elements are the parts that person typically use, which properly adopt bright color, so as to get rid of a depressing feeling, satisfying the request of operating accurately and man-machine coordination.

#### **4.2 Satisfy the Request of Environment and Function:-**

The color should well express the function characteristic of a 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 numerical management machine typically properly use the neutral bases color of low bright degree and low pure degree, contrasting with component color, so as to enhance the vision recognizing degree. The panel ought to haven't any robust reflection and dazzle light-weight. The color of the display part should be obvious and refreshing, but not dazzle the eye. The color of the caution part should be fresh and gorgeous to come into notice, and the color of the concealment part should be quiet.

#### **4.3 Value the Choice of Tone:-**

The choice of the main tone of a numerical control machine tool is a problem of very important; the different tone will form different art effect. In matching color of the numerical control machine tool, having the 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 numerical control machine tool is more unified. Contrary, the color matches more much, causing the color more disorderly, so that it is difficult to adjust generally, the most body characteristic is unclear and also the harmonious impact is broken. The choice of tone still must notice whether or not distinctive beauty. It needs to hold tight people's mental request for the color of a numerical control machine tool, transform the tone of numerical control machine a tool 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 the numerical control machine tool are suitable to use a low pure degree color as the main body color and use clear, elegant and clean color to unify overall situation to make the main tone definite. Using a little area of high purity color to embellish to make the whole seem to be abundant, change and organic. The whole color typically uses monochrome or 2 sets of colors, not more than three sets of colors [5].

#### **4.4 Notice Novelty:-**

The color design of a numerical control machine tool should notice novelty and creativity to make it have vitality and more competitiveness. The color of numerical management machine not solely will satisfy the request for appreciating beauty, under the particular condition but also has a strong influence, which can cause the transfer of people's emotion and interest to attract people's attention. For example, in an international industrialization product exhibition, a red numerical control machine tool produced by Germany appeared in the mechanical exhibition hall. Though the red is not the color that the numerical control machine tool systematically uses, the factory surprisingly adopted red color to decorate numerical control machine tool, causing the purchaser to the crowd in its vicinity and then understood its function characteristics, which created a stunning

sensation impact and created its order staggeringly exceeded alternative nation. It is thus clear that the novelty of the color design is very important.

#### **4.5 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 becomes the color which is used extensively. The color design of a numerical control machine tool also should sufficiently consider using the "popular color" to accord with the age request.

#### **REFERENCES**

- 1 Bao Kun : Research on Modeling Design of Industrial Product.
- 2 Ling Kue : Art Design of Machine.
- 3 Xing Baa : Research on Modeling Design of Numerical Control Machine Tool.
- 4 Muakoshi J. Huan : Mechanical Manufacturing Equipment and Design.

#### **AUTHOR AFFILIATION**

DR.SÁNCHIT PANDOU  
SAMAN KAYUB