

## How do Chinese spring steel wire manufacturers control product stability?

In the past five years, the Chinese government has strongly called for and vigorously supported the "high-quality development of China's manufacturing industry", in such a national context, China's spring manufacturers for the quality of materials increasingly high requirements, making the spring steel wire in China competition has become very fierce, if can not meet the needs of Chinese buyers, it will be difficult to meet the order needs of overseas customers; Do not innovate, do not strictly control product quality, will be eliminated;

The top ten Chinese spring wire manufacturers mainly ensure the stability of products through the following aspects:

First, select the most suitable raw materials according to the buyer's product processing needs;

The quality of spring steel wire is largely determined by raw materials, and raw materials also determine the price of the product;

The first step, select high quality spring steel; Choose high-quality carbon structural steel, alloy spring steel or stainless steel as raw materials to ensure the basic performance of the steel wire from the source. For example, when producing carbon spring steel wire with high tensile strength, 82B grade of high-quality carbon steel hot rolled wire rod is selected;

The second step, develop a rigorous inspection and screening process; Raw materials should be strictly inspected and screened before entering the factory, including chemical composition analysis, mechanical property testing, metallographic microstructure inspection, surface quality testing, etc., to ensure that the quality of raw materials meets the requirements;

Second, one to one customized production process according to the buyer's product requirements;

Accurate heat treatment: accurate understanding of the buyer's product requirements, according to different types of steel wire and performance requirements, the use of appropriate heat treatment

process, such as lead bath quenching, incomplete annealing, recrystallization annealing, solution treatment, precise control of heating temperature, holding time and cooling speed, so that the steel obtains good structure and performance.

Reasonable drawing process: control the total surface reduction rate and pass surface reduction rate, generally using about 90% of the larger total surface reduction rate and smaller pass surface reduction rate to ensure the toughness of the product. At the same time, the exit temperature of each pass steel wire is controlled below 150°C during drawing to prevent torsion cracks caused by strain aging.

Elimination of residual stress: there is a large residual stress in the steel wire after drawing, which can be eliminated by online straightening or low temperature heating and other measures to reduce the impact of residual stress on product performance.

Thirdly, develop a rigorous quality inspection process and strictly implement it;

Process testing: In the production process, the quality of the steel wire for multiple processes, including dimensional accuracy testing, surface quality inspection, mechanical properties testing, etc., timely detection and correction of quality problems in the production process to ensure stable product quality.

Finished product inspection: a comprehensive inspection of the finished steel wire, including appearance, size, mechanical properties, metallographic organization and other aspects of the test, to ensure that the finished steel wire in line with national standards and customer requirements. Some enterprises will also carry out special testing such as fatigue life test and salt spray test.

Quality system management: Establish a sound quality management system, such as ISO 9001 quality management system, from raw material procurement, production and processing to product sales and other aspects of strict quality control and management, to ensure the stability and reliability of product quality.

Fourth, equipment maintenance management

Equipment errors may lead to differences in the same batch of products, thereby affecting the unity and stability of the product, causing losses to the spring manufacturer;

Regular maintenance of equipment: carry out regular maintenance of production equipment, including equipment cleaning, lubrication, accuracy adjustment, parts replacement, etc., to ensure that the equipment is in good running condition and reduce the impact of equipment failure on production.

Equipment update and upgrade: timely update and upgrade production equipment, the introduction of advanced production technology and equipment, improve production efficiency and product quality stability. Such as the use of automatic spring coiling machine, steel wire automatic hardening line, mesh belt continuous tempering furnace and other automatic equipment.

Fifth, continuous training and assessment of workers;

Professional skills training: professional skills training for operators, including production technology, quality testing, equipment operation and other aspects of training, and strict assessment, after passing the assessment can be on the job; Ensure that workers can master the production process and operating procedures to ensure product quality and stability.

Quality awareness training: strengthen the quality awareness training of employees, so that employees fully realize the importance of product quality, establish the concept of "quality first", and consciously comply with quality norms and requirements in the production process.

Sixth, establish customer files;

After the customer places an order, record the customer's product requirements in detail, as well as the raw materials used in the production of the corresponding products, raw material suppliers, processing technology, processing experience, and prone to mistakes; To ensure that every batch of products are the same quality.