CS - 1100

CableStream





Introducing our latest innovation in the field of industrial temperature sensors - the CS-1100 a cutting and straightening machine for MI cables. This state-ofthe-art machine has been designed to automate the temperature sensor production process, ensuring greater efficiency, accuracy, and speed.

MI cable

MI cables are commonly used in the manufacturing of temperature sensors due to their excellent thermal conductivity and durability. However, the process of cutting and straightening rigid MI cables has traditionally been a time-consuming and labor-intensive task, requiring skilled technicians to manually handle the cables. There are also technical concerns to take into consideration such as:

- the outer sheath, combined with the MgO insulation, requires a specific cutting technique to ensure a burr-free product.
- to effectively grind through compact MgO, specialized cutting tools and techniques are required to prevent wear on blades.

These issues not only lead to higher labor costs but also increase the risk of human error, which can compromise the quality of the final product.

CableStream CS - 1100

Our CS-1100 cutting and straightening machine for MI cables solves the above challenges by automating the process with unparalleled precision and consistency. The machine is equipped with advanced sensors and software, which ensure:

- accurate measurements (within 1mm tolerance on lengths >100 meters)
- precision cutting of the MI cables to the required length
- consistency: each cut piece is of exactly the same length and quality
- handling of a wide range of cable sizes (OD between 1.0mm and 8.0mm)

These attributes make it a versatile and valuable addition to any temperature sensor manufacturing facility.

The CS-1100 is poised to revolutionize the production of industrial temperature sensors by streamlining the process, reducing costs, and improving the quality of the final product.

CableStream



CableStream CS-1100 | High precision cutting & straightening



LCD screen

Our cutting and straightening machine for MI cables is equipped with a user-friendly LCD screen and interface, designed to make it easy to operate and monitor the machine during use. The highresolution LCD screen provides clear and detailed information on the status of the machine, including measurements, cutting length, and cutting speed. The intuitive user interface allows operators to easily adjust settings, input measurements, and start or stop the machine with just a few taps. With its user-friendly design, the LCD screen and interface help to reduce the learning curve for operating the machine and minimize the risk of errors or accidents. Overall, the LCD screen and interface make the CS-1100 a reliable and convenient solution for improving the production process of industrial temperature sensors.

Movement encoder

The movement encoder works by measuring the rotational movement of a wheel that the MI cable passes through, calculating the exact length of cable that has been fed through the machine. This ensures that each cut is made at the precise point where it is needed, resulting in consistent and accurate cuts every time.

Rotary straightener

The CS-1100 straightens the MI cable using a rotary straightener. This works by rotating the MI cable at high speeds while simultaneously applying pressure to straighten the cable. This unique mechanism ensures that the cable is straightened evenly and uniformly, resulting in a high-quality product every time. The PTFE bushings are an integral part of the rotary straightener, ensuring that the cable rotates smoothly and evenly. With regular use, these bushings can become worn. The CS-1100's rotary straightener has been designed with ease of maintenance in mind. Using a unique and straightforward process, the PTFE bushings can be replaced in a matter of minutes, minimizing downtime and keeping production running smoothly.

Feeding system

The feeding system used by the CS-1100 is a standout feature, designed for precision and reliability. The system utilizes two rubber timing belts that apply constant pressure on the MI cable, resulting in a secure grip that ensures the cable moves smoothly through the machine.

What sets this feeding system apart is its ability to compensate for any slippage that may occur during the cutting and straightening process. In the event of slippage, the encoder, which is a part of the machine's unique design features, detects the exact movement of the MI cable and makes the necessary adjustments to compensate for the slippage.

Cutting disk

The cutting disc designed for use in the CS-1100 machine is made of a specialized ceramic material that enhances its performance when working with the abrasive properties of the compact MGO found within mineral insulated cables. Its remarkably thin profile is a key feature, allowing for precision cuts through the MI cable without compromising the integrity of the cable or the precision of the cut. Moreover, this cutting disc is specifically tailored to address the challenge of heat buildup, a common issue when cutting through sheath materials such as AISI310, AISI316, or INC600. Its advanced design minimizes heat generation, ensuring the lifetime of the disc.

Clamp system

We have developed a smart solution to hold the MI cables while cutting through them. Our 3D printed grip is made from high-guality materials and is designed to fit a variety of cable diameters. It works by clamping itself to the MI cable very securely and thus minimizing slippage and ensuring a precise cut every time.

The automatic adjustment feature ensures that the clamp fits the cable perfectly, regardless of the diameter, providing a consistent and reliable hold. This results in a high-quality straight cut that is free of burrs, providing a clean and professional finish to the MI cable.





Electronics

0

•

The smart and user-friendly software in our cutting and straightening machine is designed with a range of features that help to improve efficiency and reduce downtime, some examples include:

- 1. Automatic maintenance notifications: The software is programmed to give timely warning as to when the cutting disk or bushings of the rotary straightener need to be replaced. This ensures that maintenance is performed at the appropriate time, thus minimizing the risk of poor performance, downtime or damage to the machine.
- 2. Malfunction alerts: The software is designed to detect malfunctions in the machine, alerting the operator with flashing lights and on-screen warnings about the problem. This provides a quick and easy way to identify and immediately address any issues that may arise.
- 3. Queue management: The software provides the operator with the option to add jobs to a queue, allowing the machine to automatically move on to the next job once the current job is finished, reducing the need for manual intervention and increasing efficiency.
- **4.** Log files: The software allows the operator to save operating information on log files providing a valuable reference tool for troubleshooting and maintenance.

USP's CS-1100

One of the key features of our machine is that essential parts such as electronics, cutting disks, and PTFE bushings are easily ordered and quickly supplied. This means that in the event of a failure, downtime can be kept to a minimum which is particularly important since even a small delay can have a significant impact on operations. By contrast, other machines on the market have extremely long lead times or irreplaceable parts.

CS-1100 key technical features

- High precision cutting and straightening of MI cables
- Handles a wide range of cable lengths and diameters (1-8mm)
- Tailor-made clamp and blade system provides burr free cutting
- Software gives timely notifications when internal parts require replacement
- Advanced safety features to protect operators and prevent accidents
- Malfunction alerts are highly visible (flashing lights) and easily localized (onscreen specifications)
- Extremely tight tolerances on cut lengths
- Log files allow for troubleshooting and maintenance

User-friendly features that enhance productivity

- The machine can maintain a production queue, which allows it to automatically move from one job to the next.
- Easy-to-use touchscreen interface with intuitive controls
- Modular design for easy maintenance and replacement of worn parts
- Compact size allows for easy installation and transportation
- High production capacity supports increased efficiency and productivity
- Optional on-site installation and training service to ensure optimal performance and safety.
- Efficiency: Combines multiple production steps simultaneously
- Inner parts, such as electronics, cutting disks and PTFE bushings can be easily re-ordered



CableStream

Accessories

The CS-1100 machine itself is the heart of the system, and with its advanced sensors and software is responsible for accurately cutting and straightening the MI cable to the desired length and shape. It's efficiency and functionality can be further enhanced by the following optional accessories:

Spool holder

The spool holder holds the MI cable spool in place, which allows the machine to smoothly pull the cable through during the cutting and straightening process. It is particularly useful when working with small diameter MI cable. Whereas most spool holders are known to cause tangling or snarling of the cable, our spool holder is perfectly compatible with the machine, providing a seamless and efficient workflow that minimizes downtime and maximizes productivity.

In addition, our spool holder is designed to be ergonomically convenient, with a height that allows for easy and comfortable changing of coils. This ensures that operators can work efficiently and without unnecessary strain or discomfort, improving overall productivity and job satisfaction.

Collector

The collector is used to neatly collect and organize the straightened cables, making it easy to handle and transport them to the next stage of the production process.

Optional support service

We offer an optional on-site installation and training service. Our training program is designed to help your machine operators use the CS-1100 effectively and safely, and to get the most out of its advanced capabilities. During the training, we will provide a comprehensive overview of the machine and its features, including how to change wear parts such as PTFE bushings and cutting disks. We will also demonstrate how to adjust the machine to different cable diameters, and explain how to optimize performance.

By taking advantage of our on-site training service, you can be confident that the machine is correctly set-up and that your machine operators will have the skills and knowledge needed to get the most out of the cutting and straightening machine.

Automate your production process of industrial temperature sensors!



About TMF

Founded in 2023, The Machines Factory is a Dutch company focused on producing machines that revolutionize sensor automation. Our mission is to produce machines that enable customers to automate their industrial temperature sensors production process , thus reducing the high degree of manual labor and lengthy production times that it usually involves.

We believe that automation is the future of manufacturing, and we're passionate about helping our customers take advantage of the latest technology to streamline their operations, reduce costs, and increase productivity.

The Machines Factory started as a co-creation between Dutch companies Kamet Trading B.V. and Antech Solutions B.V.

Kamet has established itself as a leading supplier in the field of thermal components, supplying an extensive range of high quality products to industrial temperature sensor manufacturers in Europe.

Antech is focused on the research, development and prototyping of machines. Antech aims to fill a critical gap in the market related to system mechatronic development. A gap best described as practical development of future technologies proven in working prototypes.







The Machines Factory Tennesseedreef 6 NL-3565 CJ Utrecht

NL-3565 CJ Utrecht The Netherlands

L +31 (0) 85 040 27 00

₩ info@themachinesfactory.com

www.themachinesfactory.com