电力电缆电阻测量

如果需要理想监测高压电缆的单线生产，在绞线机上就要直接进行测量控制。

**Burster**测量电缆长度内部的电阻精度达到0.1%，机械操作人员能够根据测量结果调整压接头，从而优化电缆的截面。

生产单股电线或电力电缆的最佳质量控制是直接在绞线机上进行测试。组件**Resistomat**® 2304、夹紧装置2382A和升降台能够在生产过程中实现样品长度的测量，但由于短暂停止绞线机，机器表面的选取，根据测量结果调整压缩和，以优化电缆直径。

由于绞线机与测量系统相结合，整个生产过程都在监控之中，因此符合ISO 9002标准的要求。单次测量数据可以存储在电脑里，或直接在打印机上输出。

ISO 9002生产级别是先进的，与之相关的ISO 9003产品级别验证，在批量生产之后（使用Resistomat® 2304和夹紧装置2382L），

在进行测量之前，绞线机必须停止，升降台和测量装置从与测试位置。握住开关位置高，位置1000毫米处须紧安装在电缆的绞线头上，开始接触整个测量过程中，电缆与温度控制的水槽内，为避免水槽内断水，温度应保持恒温的温度均匀分布，非重复点漏水，热交换水，水槽加水，保持温度及设定的温度，尽可能与测试对象保温度接近。

因此，能够获得一段短暂的温度持续的时间和快速精确的测量值。水槽内使用精密的PT 100传感器，该水槽对温度补偿来说是必要的，Resistomat®在20°C下计算值。

**Burster**系列1240校准电阻器设计用于校准和测试电阻表。每个电阻都提供制造商的测试证书。根据要求，电阻可交付DKD校准证书，此证书符合国际标准，显示的物理单位与国际SI体系保持一致。

由于导电缆的温度直接影响测量结果，测量的水槽温度和Resistomat® 2304所显示的温度也必须进行检查，拥有DKD证书的校准温度计非常适合此用途。不需要特殊的湿度环境需通过导电缆的测量电路线夹，通过示波器头和另一端的拉伸齿轮，电流直接经导电缆，带有测量盒的升降台安装在电动机之间。

当然，一个先决条件是必须履行正确的测量方法：选择绞线和测量装置，以及紧密其后的绞线装置必须不得进行电气连接，连接头上的其余机器零部件，以及电气连接的两端都必须绝缘，以至于对外测量的电缆截面来说作为绝缘而显得很不足。换句话说，此电阻应该连接接头和拉伸绞线之间的电阻大1,000倍。

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Wire resistance measurement

To ideally monitor the production of single wires for high-tension cables, quality control must be performed directly in the stranding machine.

Burster allows line resistances to be measured to an accuracy of 0.1% inside the production of a cable length. The machine operator is able to adjust the compacting head in accordance with the measurement results, optimising the cable’s cross-section.

The optimal quality control for production of singular wires and power cables is done with a test directly in the stranding machine. The components Resistomat® 2304, the clamping device 2382A and a lifting table make a measurement of a sample length possible during production, however only with a temporary stop of the stranding machine.

The production process is supervised and therefore fulfils the requirements of ISO 9002 due to the integration of the measurement system in the stranding machine. The single measurement values can be registered on a PC or by direct print-out on a printer.

The ISO 9002 – verification level production – is advanced, of course, in relation to the ISO 9003 – verification level product – where the testing is effected on meter probes after the production of the batch (with Resistomat® 2304 and clamping device 2382L).

Before a measurement can be done, the twisting machine must stop and the lifting platform carrying the measurement basin rises to make contact with the specimen. The exact high position is reached by limit switches. The contact to the cable happens with spring mounted potential taps at a distance of 1,000mm. During the whole measurement the cable is inside a temperature-controlled water bath. A circulation pump ensures an even distribution of temperature in the water bath and re-circulates the water flowing out through the bulkheads.

The water bath is heated and maintained by a thermostat at a set temperature as close as possible to that of the test object.

Burster’s series 1240 of calibration resistors are designed for calibrating and testing the resistance meter. As the temperature of the conducting cable directly influences the measurement result, the temperature of the water bath measured and displayed by the Resistomat® 2304 must also be checked. A calibrated thermometer with DKD Certificate can be used for this purpose.

Of course, one prerequisite must be fulfilled for measurements to proceed correctly: the drawing winch as well as the cable guides and winding units following it must not be electrically linked with the remaining machine components on the side of the compacting head, or the resistance of the electrical link must be high enough to render it insignificant as a shunt to the cable section which is to be measured.

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