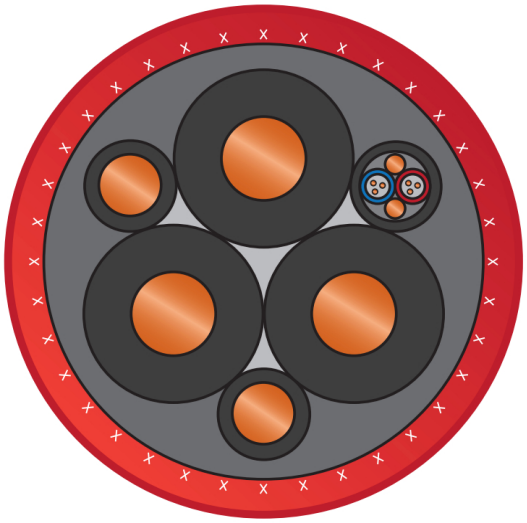
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3.6/6kV - 12/20kV MV Power Reeling Cable with Optical Fiber

3 x 120mm² + 2 x 70mm²/2 +12 fibers (9/125μm)



Technical Specifications

1. Cable Overview

This Medium Voltage (MV) Reeling Cableis designed to deliver power and communication in harsh environments, such as mining operations, where both mechanical durability and reliable data transmission are essential. The combination of power conductors andoptical fibersensures seamless integration of power supply and data communication.

The following technical specifications are based on the structure illustrated in the diagram, with theouter sheath material made from 5GM5 rubber, which offers superior mechanical protection and flexibility.

Structure and Components

Tinned Copper Conductor:

The core of the cable consists of tinned copper wires, known for their excellent electrical conductivity and corrosion resistance, even in demanding environments.

Conductor Screen:

A conductive layer applied around the copper conductor to ensure even electrical distribution and minimize the risk of electrical stress within the cable.

EPR (Ethylene Propylene Rubber) Insulation:

The power cores are insulated with EPR, which provides excellent thermal stability, flexibility, and high dielectric strength, ensuring the cable operates safely under varying temperature conditions.

Insulation Screen:

This additional layer around the EPR insulation serves to control the electric field and improve the overall safety and reliability of the cable.

Semiconductive Insulation:

A semi-conductive material is used to improve electrical stress distribution, further enhancing the cable's performance under high voltage conditions.

Filler:

Non-conductive fillers are used to maintain the circular shape of the cable and improve its mechanical stability. These fillers prevent the cores from shifting, which could otherwise affect performance.

Optical Fiber:

Embedded within the cable is a set ofoptical fibers(12 fibers of 9/125μm), enabling high-speed data communication. These fibers allow real-time monitoring and control of the cable's condition, reducing downtime and maintenance needs.

Optical Fiber Sheath:

The optical fibers are protected by a specialized sheath, ensuring they are shielded from mechanical damage while maintaining flexibility.

Inner Sheath:

A robust inner sheath provides another layer of mechanical protection, enhancing the durability of the cable in dynamic reeling applications.

Braiding:

The cable features a braided layer that enhances its tensile strength, ensuring the cable can withstand the mechanical stress encountered during reeling, without compromising performance.

Black Outer Sheath:

Theouter sheath made of 5GM5 rubberoffers excellent abrasion resistance, flexibility, and protection from environmental factors such as UV radiation, chemicals, and oils. Its high elasticity ensures the cable can perform in high-tension applications without cracking or deteriorating over time.

Electrical Characteristics

Rated Voltage: 3.6/6kV - 12/20kV

The cable is rated for medium voltage power applications, providing the necessary electrical in sulation and protection for systems operating between 3.6kV and 20kV.

Power Conductors: 3 x 120mm² + 2 x 70mm²/2

The cable includes three main power conductors of 120mm², along with two auxiliary conductors of 70mm², allowing it to deliver high power loads efficiently.

Optical Fiber: 12 fibers (9/125µm)

The integrated optical fibers allow for fast, reliable data transmission, making it ideal for mining and industrial applications that require real-time communication and monitoring.
Mechanical Properties

Mechanical Properties

Outer Sheath Material: 5GM5 Rubber

The outer sheath material is specifically designed for reeling applications. It provides exceptional resistance to wear, ensuring that the cable remains functional even in environments with heavy mechanical stress.

Flexibility:

The cable's design, combined with the 5GM5 rubber sheath, offers high flexibility, making it suitable for dynamic applications like cranes, mining equipment, and other heavy-duty machinery.

Tensile Strength:

With the addition of a braided layer, the cable can withstand the extreme tensile forces encountered during reeling, making it ideal for operations with high mechanical demands.

Applications

Mining and Industrial Applications:

This cable is ideal for use in mining sites and heavy industries where both power transmission and data communication are crucial. It can handle dynamic loads, such as those experienced by mobile machinery or conveyor systems.

Cranes and Reeling Equipment:

Suitable for use in reeling applications, the cable’ s flexible design ensures smooth operation even under high tension and repetitive motion. The optical fiber ensures that data communication can occur in tandem with power supply.

Advantages

Integrated Power and Communication:
By combining power conductors and optical fibers, this cable simplifies installation and reduces the need for separate communication lines.

High Durability:

With a 5GM5 rubber sheath and reinforced braiding, the cable is resistant to mechanical wear, UV radiation, and chemicals, ensuring a long operational life in harsh conditions.

Enhanced Safety:

The use of conductor screens, insulation screens, and semi-conductive insulation provides excellent electrical performance and minimizes risks associated with medium voltage power transmission.

Conclusion

The 3.6/6kV - 12/20kV MV Reeling Cable with Optical Fiberis designed to meet the demanding needs of industries that require both power and data transmission in harsh, dynamic environments. With its robust construction, high flexibility, and integrated optical fibers, this cable offers a reliable solution for applications in mining, heavy machinery, and reeling systems.