

Frequently asked

Questions

Camesa Quality:

Does Camesa allow splices in their conductors?

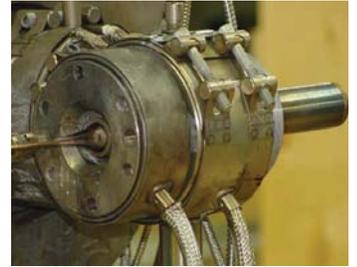
November 2013

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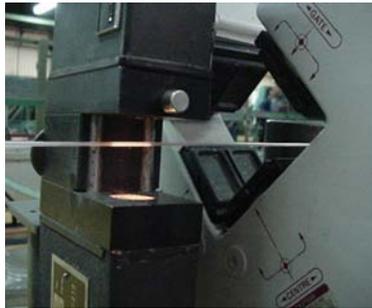
No, Camesa never allows splices in any of their wireline products. In fact, Camesa's extensive ISO 9001 & API certified manufacturing processes and quality assurance procedures consist of multiple quality check points and minimum standards that disallow conductor splices, insulation patches, and outer armor welds on mono-conductor wirelines.

Camesa's EMC manufacturing involves various processes such as, plastic extrusion on copper conductor, stranding of conductors (in case of multi-conductors), taping the core

with semi-conductive tape, and armoring processes. The carbon steel wires used in Camesa's EM cables are drawn in their own wire mills. This ensures strict quality control of the type of steel and wire used in Camesa cables. All these processes are monitored by a strict quality control program. The wires are checked for composition and other mechanical standards through tensile, torsion and bending tests that are conducted after the drawing process is complete.



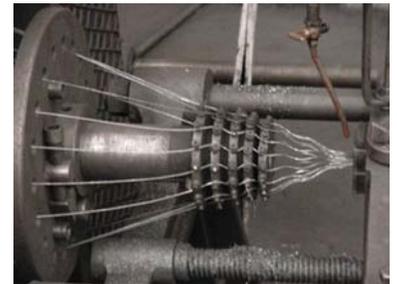
Copper conductor with extruded insulator.



Conductor inspected by laser micrometer.

In the EMC manufacturing line our Quality Verification System (QVS) uses different sets of laser scanners at various stages to measure parameters such as diameter and eccentricity. In addition, in the extrusion line a high voltage is applied to the plastic insulation to check robustness of the plastic insulation. In the same manner a voltage is applied between the conductor and armor during inner and outer armoring processes to check breakdown of plastic insulation. Conductor splices are never allowed on any of Camesa's products. All this information is monitored and errors are notified through a set of alarms. This data can also be made available later for review if any problems are found in the cable.

During the plastic extrusion process a water blocking agent is applied to the stranded copper conductor. This agent reduces the migration of gas and water. During the armoring process, a special pressure sealing agent called SUPERSEAL is applied between the inner and outer armor layers that ensures pressure will not escape through the armor in high pressure well conditions. The diameter of the cable is measured during the final armoring process manually at every 1,000-ft. length of the cable and is also measured against upper and lower specifications with a laser micrometer.



Armor wires getting SUPER SEAL applied.

Each EM cable is tested for its electrical parameters of resistance, capacitance and insulation resistance. A high voltage test is done for a specific period of time to ensure the cable works within its specified voltage rating. After manufacturing of the insulated conductor is completed, the entire reel is submerged into a water bath and high voltage is applied to the ends of the conductor to check the plastic insulation. To check the effectiveness of the water blocking agent, a pressure test is conducted at 50 psi by pressurizing the cable with water for about 60 min. To ensure breaking strength of the cable is within specifications, one in every ten cables manufactured is tested for breaking strength using a tensile strength test.

Every facet of Camesa's wireline manufacturing process is computer monitored, eliminating the risk of human error during manufacturing and guarantees a precise final product. Each cable's quality check points are recorded and electronically stored for future use giving our customers full traceability for their wirelines back to the manufacturing floor. With this level of attention to detail, it's no wonder operators in every oil field across the globe trust Camesa to stand behind their wireline operations.

Contact **Dustin Dunning** for more information or suggestions for Camesa's monthly Q&A.
DustinDunning@WireCoWorldGroup.com