WHY IS A CONTROLLED ENVIRONMENT NEEDED IN THE PRODUCTION OF PRE-ASSEMBLED FIBER OPTIC CABLES?

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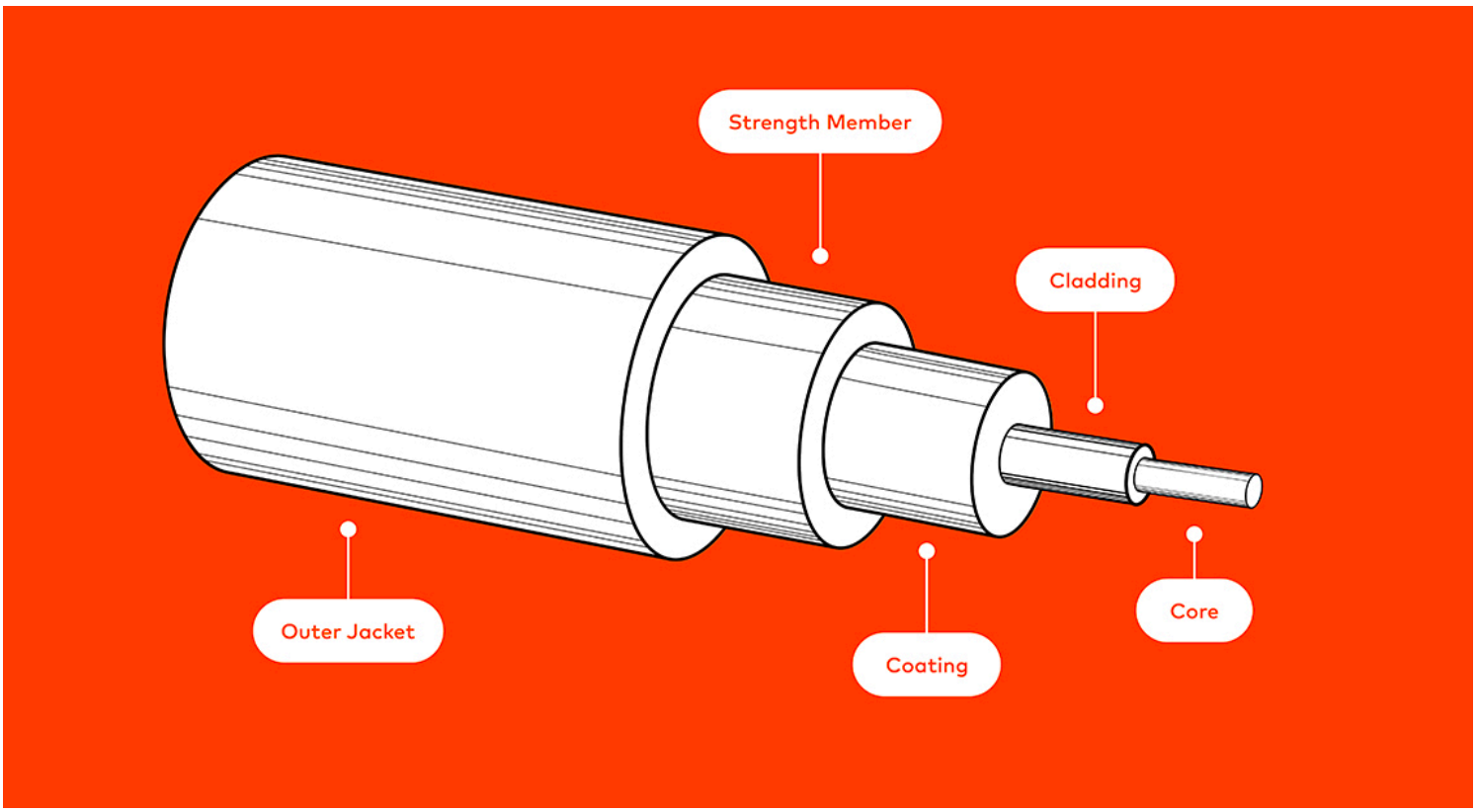
Category: Fiber Optic

Cleanliness is critical when it comes to fiber optics, whether during the production process, during installation or handling.

Optical fiber transmits information with pulses of light through strands of fiberglass or plastic over long distances. These fiber optic strands have approximately the diameter of a human hair. Any impurity, dust particle or dirt, even if invisible to the naked eye, can contaminate and impair the final performance of the product.



In order to ensure that pre-assembled cables achieve the best results possible, there are some controlled production environment measures that we can follow:

• Clean work environment

Keeping the work environment clean is essential to not run the risk of contaminating the product. The floor must be kept clean to not raise dust while moving and the countertops need to be equally clean so that the workstation can be used without risk of contamination.

• Keep the windows closed during production

Dust, as already mentioned, represents several risks during the production of pre-assembled cables. So, to avoid this problem, keeping the windows closed while productions are running is a good option.

• Use personal protective equipment

The clothes we use in our daily lives have a high probability of being contaminated with dust, threads of the most diverse species and natural human grease oils on the surface of the skin. By using these PPE's we protect the work material from the impurities in our clothing. In addition to protecting the material, it also protects those who use them while handling the cables, as the fibers, when they break, tend to stay on the clothes, causing some discomfort and, sometimes, the fibers can even infiltrate the skin.

• Hold long hair up

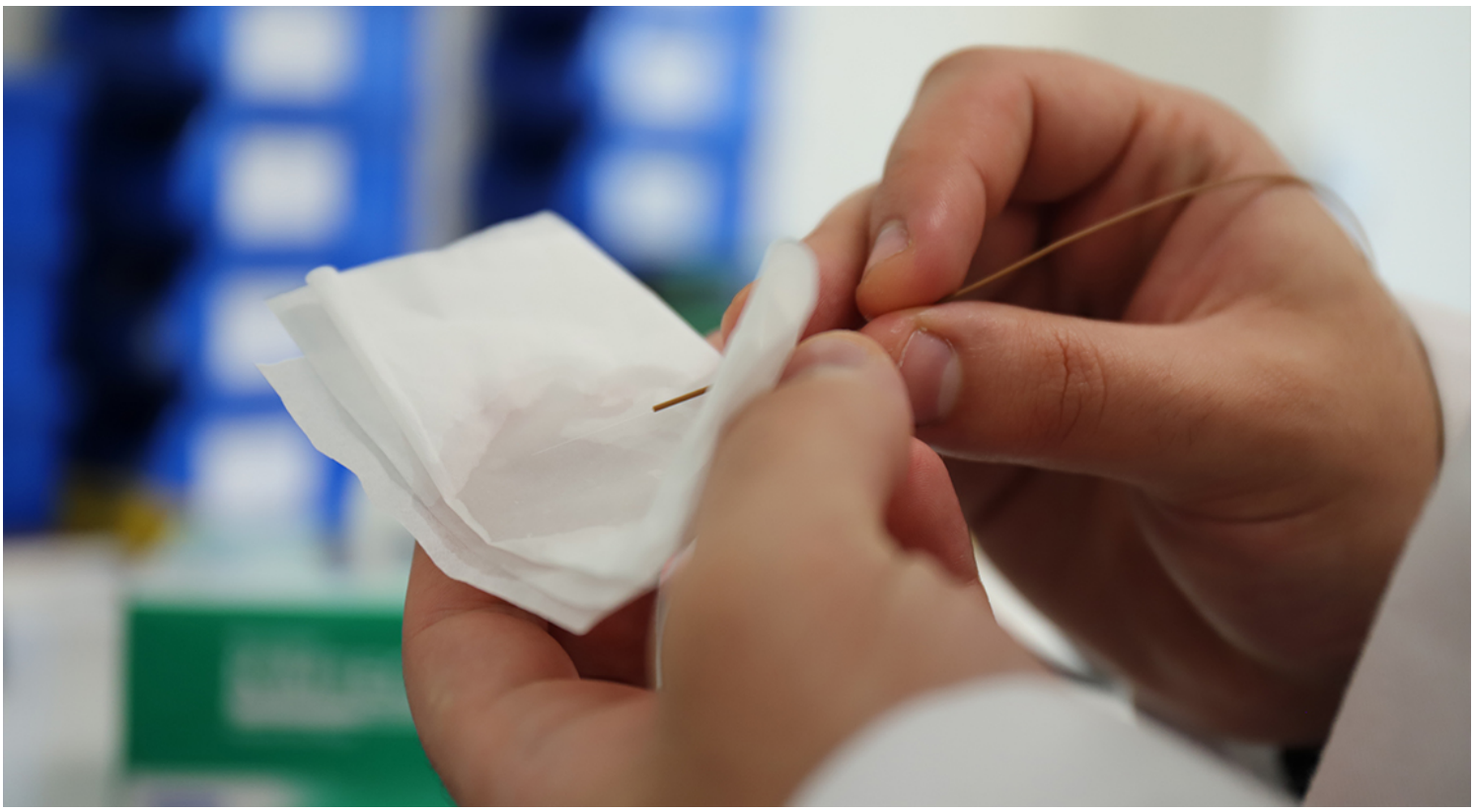
If you have long hair, clipping your hair not only prevents hair from falling into the workspace as it also keeps your hair back so it doesn't get in the way during the production process. In the polishing of a connector, for example, this action is crucial because it is where the biggest risk of contamination is.

• **Wash your hands before starting**
In addition to our hands accumulating dirt, they also produce grease oils. Having this in mind, it is good to be careful and wash your hands before starting work.

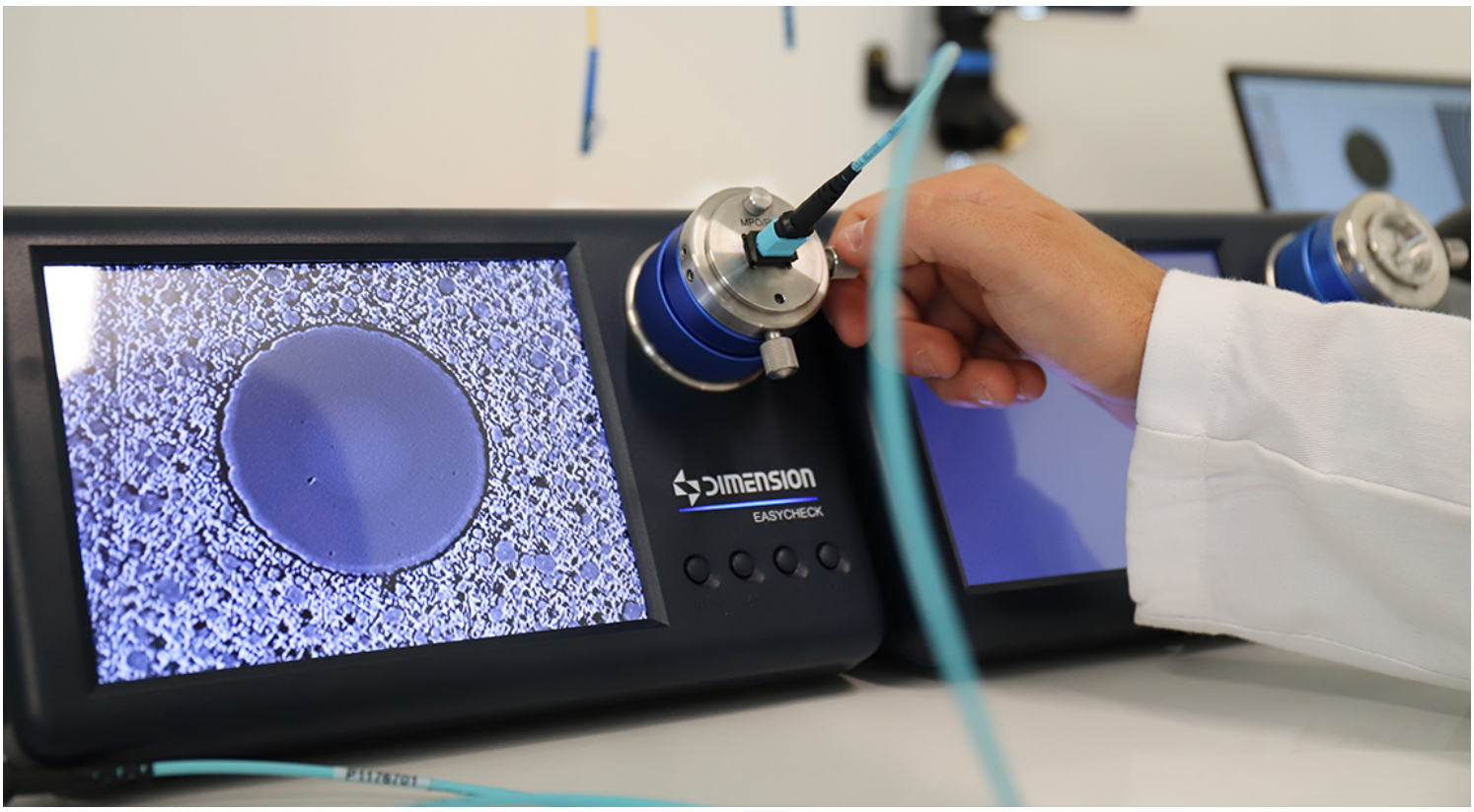
• **Do not make sudden movements**
Avoid making sudden movements in the production area to avoid raising dust and dirt.

• **Control the temperature and humidity**
The controlled temperature and humidity of the workspace is important to guarantee the constant quality of the materials used in production. The space must remain at a mild temperature, which is neither too hot nor too cold. We at the Higgs, for example, have always adopted our space with temperatures between 18°C and 22°C, depending on the time of year.

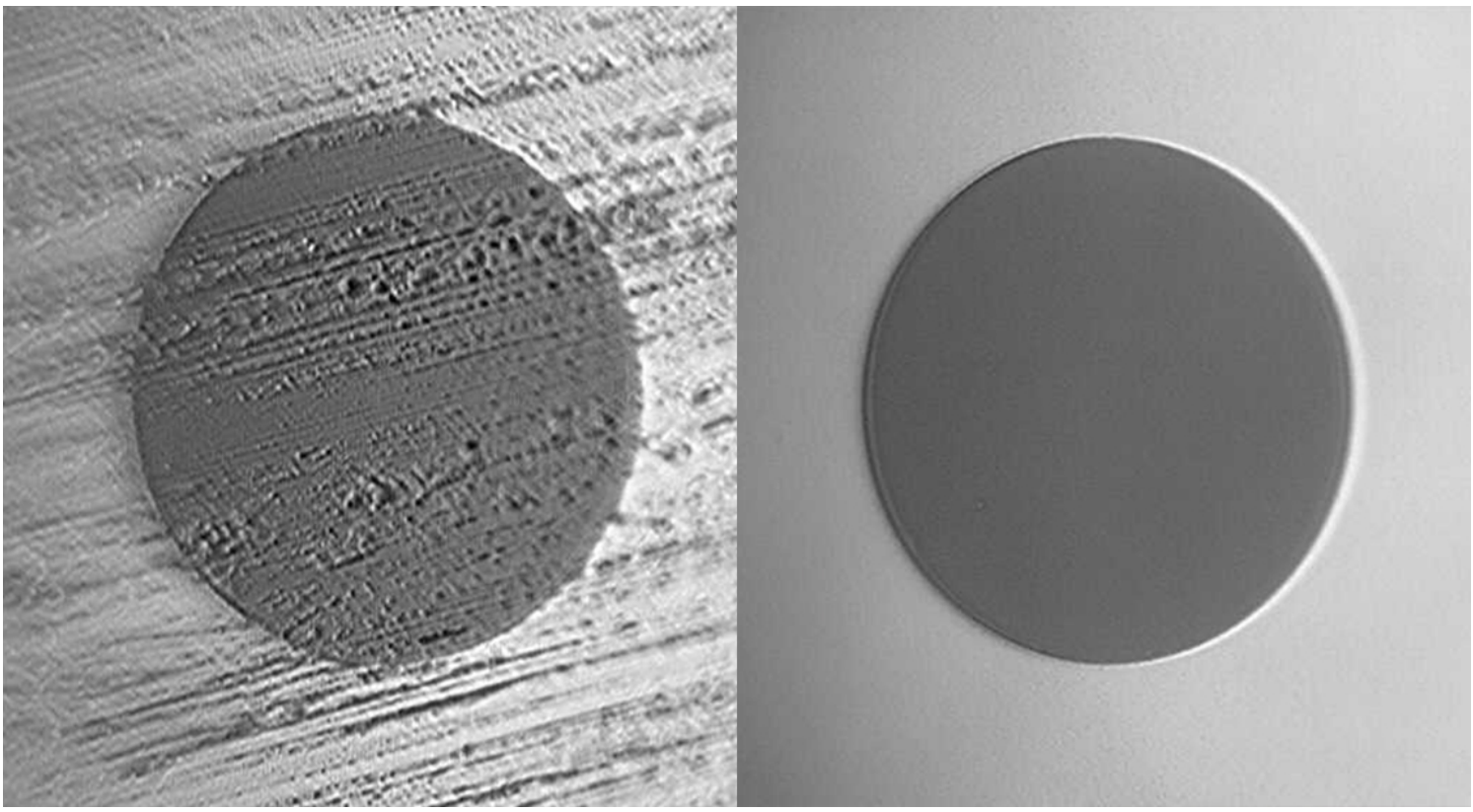
At Higgs these are some of the measures that we follow as a controlled production environment. We always clean the fibers and connectors with isopropyl alcohol and lint free wipes to ensure they are properly cleaned.



When installing pre-assembled cables, all the measures mentioned above are also very important to have in mind. However, there is one that stands out, which is cleaning, as the lack of it or a poor cleaning of the ferrule can contaminate and put an entire installation at risk. We advise you to avoid installing in a dusty environment and always clean the connectors before making a connection with suitable materials. It is also good practice to visually inspect the connectors with a proper microscope to verify the cleanliness of the ferrule before any connection.



Taking everything into account, to ensure the quality of the final product we consider extremely important that there is a controlled environment in the production of pre-assembled cables. A small particle of dust is enough to create irreversible damage. In order to not compromise the results of the final product, we must lean on following these measures.



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