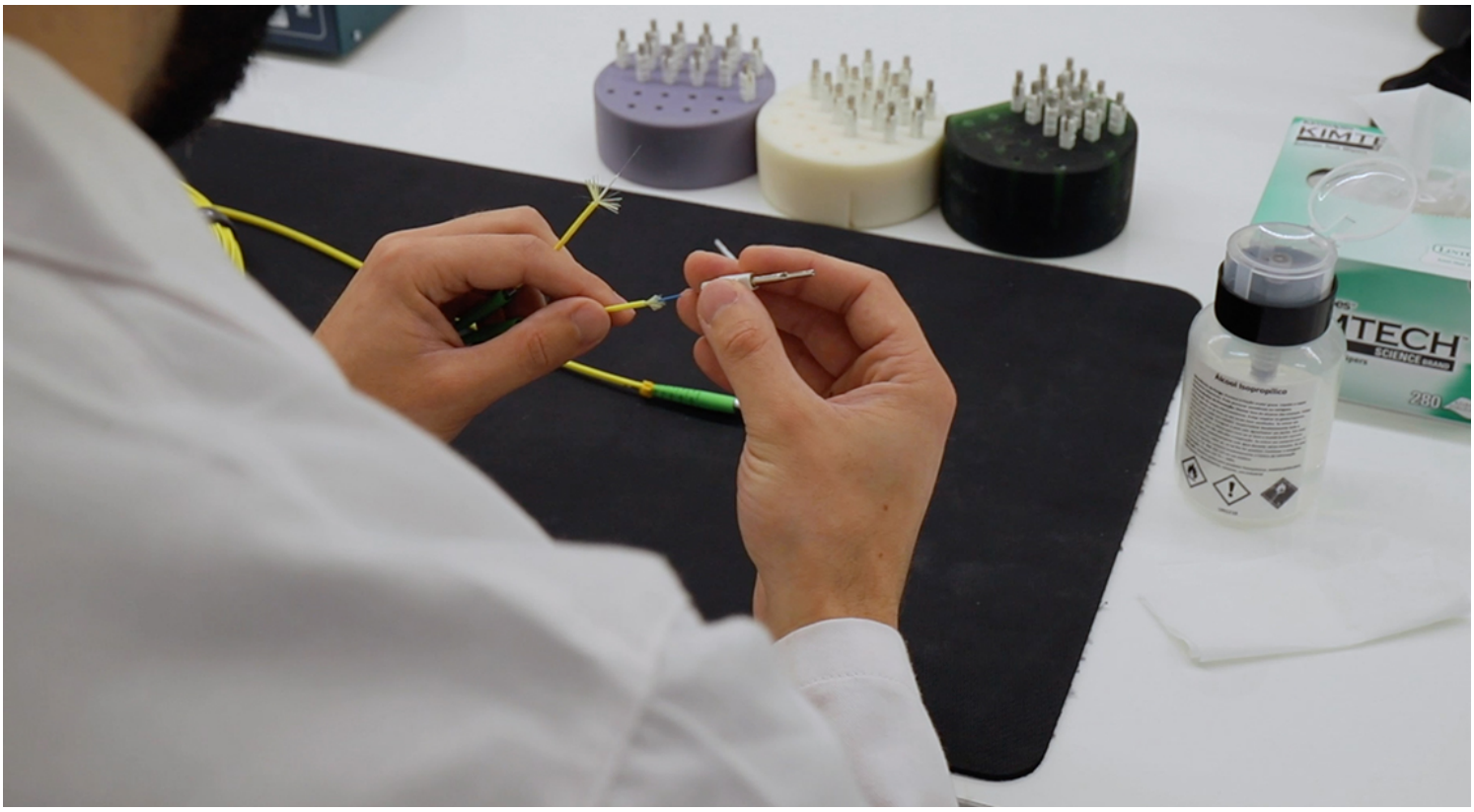
CLEANING PRECAUTIONS WHEN HANDLING FIBER-OPTIC CABLES

Posted on 25-07-2022 by Luís Taveira



Category: Fiber Optic

Optical fibers are flexible filaments made of transparent materials, such as glass or plastic fibers, and are used as a light propagation medium. Despite their many applications, data transmission is one of the most common.

Although they are very thin, with each fiber measured in micrometers, they can be up to several kilometers long.

To better understand what precautions to take, we talked directly to the internal production team, Luís Taveira, Bruno Viana and Jéssica Silva.

They can help us understand the fundamental role of cleaning and handling fiber optic has in cable performance.

We filmed the interview so you can watch it in video format or read the full interview below.

1. What is Higgs? What is it dedicated to? And what are the factors that make it different?
Higgs is our in-house production business unit at barpa.

We focus on producing pre-assembled fiber optic solutions, and our motto is to make a product with the best possible quality and customization.

We have a young and very experienced team here that is able to respond to all the needs that the customers require, and that's essentially it.

2. How do you start your day at Higgs and what are the tasks to be done before you start working on the fiber optics?
IWe start the day with a short briefing to define the objectives of the day.

We make sure we have all the necessary elements for production: consumables, accessories and equipment.

Then we put on the PPE's and proceed to production.

3. What are the stages that the optical fiber goes through until it is ready to be packaged?
A pre-assembled cable goes through different production phases.

It starts with cutting and preparation, assembling, polishing, and testing.

It then moves on to packaging, where it is then delivered to the warehouse to be shipped to the customer.

4. What are the main precautions to be taken when handling fiber optics in the initial phase and why should they be taken into account?
One thing that we do every day and ensure every day on our production line is that the work areas are always clean.

Throughout the workday and at the end of the day, we have to make sure that these areas are ready to be used again the next day. And this means that we really value the cleanliness here because any contamination that is not visible to the naked eye can cause some damage, and serious damage, to the finished product and we will only be able to detect and repair that fault at the end.

So we also take some care with the PPE we use. It is not only for our safety but also for the performance of the

product.

Throughout the cable preparation we use isopropyl alcohol and lint free wipes to clean the fiber and ensure that at the time of assembly, once again, there is nothing that will impair the performance of the product.

5. As for the cleanliness of the work space, is it also important? Why is it important?
It is equally important, we always use lab coats, in my case I always tie up my hair during the productions, so as not to contaminate the work space.

During the productions we are always careful not to open windows, not to make sudden movements, and to always keep the floor and work surfaces clean so as not to raise dust and dirt.

If any of these impurities are not detected by us, we run the risk of ending up with a non-compliant product, what means it must be redone.

6. Does the final stage of the process, polishing, handle handling and cleaning represent the same importance as in the beginning?
Yes, if cleanliness is important in the production process, it is especially at this point that things become critical.

If we are not careful in cleaning and handling of the connectors, any particle can damage that polish and will only be detected when we do the visual inspection.

A single particle can damage the polish and make us have to redo the whole job.

7. At the end of the process, with testing, can we confirm everything that was said?
Yes, with testing we confirm that all the care taken with the cleaning and handling of the cable has been met, through visual, geometric, optical and mechanical tests.

We must ensure that we comply with IEC and Telcordia standards, and the equipment and tests we do are in accordance with these standards. The standard that we follow is IEC.

For the mechanical test, we do a simple test on the mechanical movement of the connector in order to see if everything was done according to the crimping level.

The visual test is where we see if the ferrule in the connector is polished according to the norms, evaluating the scratches, pits and dirt that can be caused during the production process, namely during polishing.

The geometric test, not all factories have the possibility to do this, confirms if the geometry of the connector is within the parameters of the norms.

The optical test is the final and most important test, because it is in this test that we confirm whether the cable

really is compliant or not.
Here we measure the insertion and return losses, as well as the cable length, all in accordance with the standards.

This final equipment used, which is also the most important, is accredited and certified by the manufacturer itself, which is American and well known in this field.

All our cables are shipped with a mini-report where the results of the optical tests are presented, as a way to prove its conformity.

In addition, the cables come with a label with a QR code that serves for our internal traceability that allows us to know all the production results of this cable.

8. After leaving our facilities, is any special care still needed in handling and cleaning?
Yes, care is always needed. In the case of cleaning, we ask all our customers to always clean the connectors before use, so that the cable is used at its best performance and does not damage the whole system that is already assembled.

9. Can you give examples of good practices on site?
Yes, one of the most important is not to remove the connector's protection until the moment the connection is to be made. Just touching it with a finger is enough to compromise the connector's result. If this happens, whether it is a touch with a finger or another surface, we recommend cleaning it immediately before reconnecting.

Use isopropyl alcohol and lint free wipes only.

It is important not to make the connection with a wet connector.

It is important to avoid pinching the cables during installation and to respect the bending radius of the fiber. If this limit is respected, no problems with fiber breakage or signal loss will occur.

10. Is there anything else you would like to add?
Just the invitation to all our customers who want to know more about us and our process, to come visit us and see by themselves how we work.