INSIDE

FIBRAIN MAGAZINE

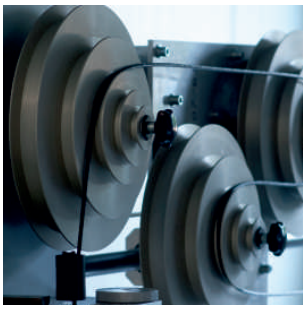


New Manufacturing Centre, new possibilities

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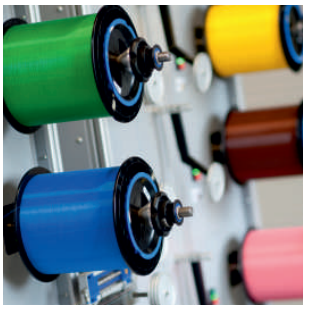
2015, **#2+3, special edition**

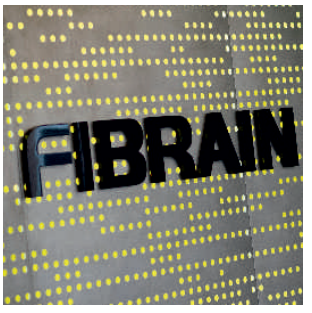
FIBRAIN®
Fiber Optic Solutions




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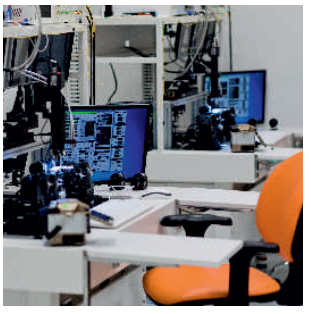


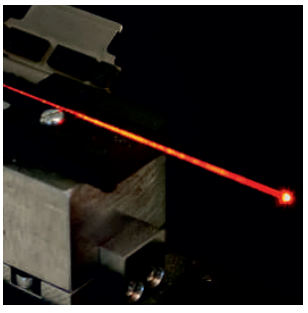


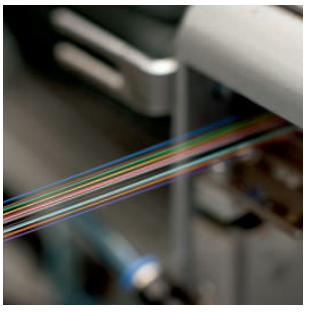

FIBRAIN











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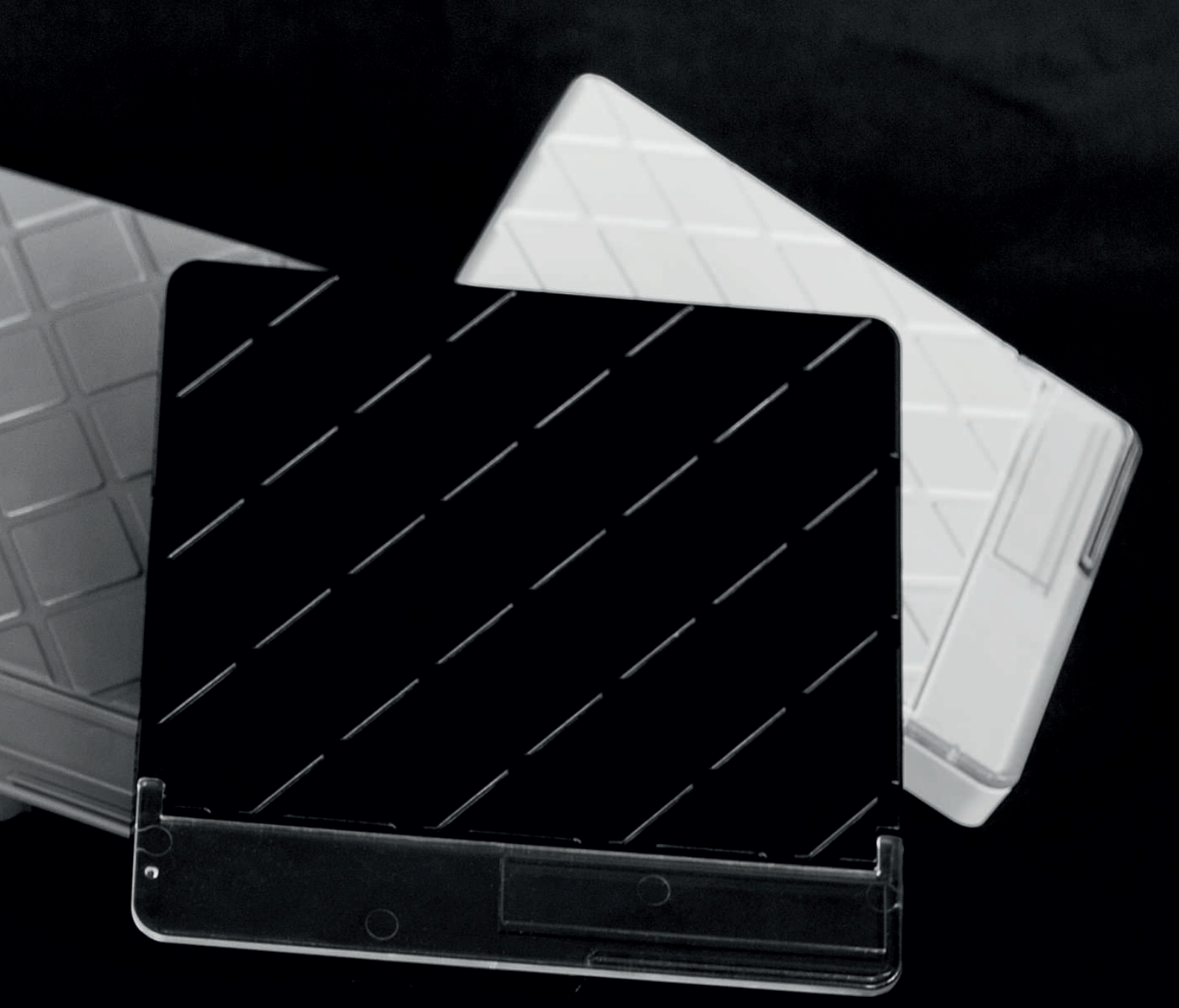
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Our new baby.

Fibrain VFT0-E1

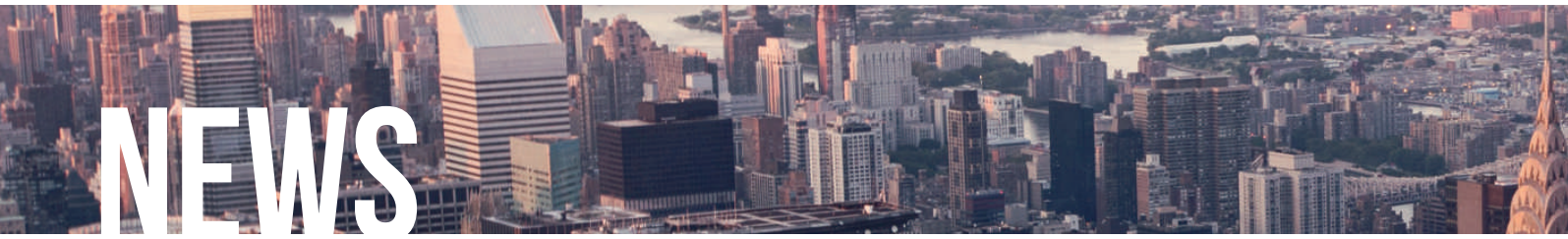




A completely new and tailored made solution for operators who appreciate innovative design, time&place saving solutions.

Fibrain VFTO-E1 Customer outlet is another innovative product which has been specifically constructed for FTTH solutions in which functionality is one of the key elements. Designed to reduce time and minimize the amount of space during installation, while maintaining a modern and compact design.

Read more page 12



NEWS



FIBRAIN A NEW SPONSOR OF ASSECO RESOVIA RZESZÓW - POLISH CHAMPION IN VOLLEYBALL!

Polish Champion in volleyball Asseco Resovia Rzeszów has signed a sponsorship deal with FIBRAIN- fiber optic manufacturer and telecom solutions leader in 2015/2016 season.
"No one needs to be convinced that our company pays a lot of careful attention to further development in the telecommunications industry, but besides that also supports sport. Asseco Resovia Rzeszów is a Polish professional volleyball team, based in Rzeszów, which has recently capped a terrific season by claiming their seventh title in the country's national league, thus we are extremely proud of our them in the Podkarpackie region. I would also add that strive for continuous development and improvement as well as being a leader in a given field are our common features" - says CEO of FIBRAIN.



TIBO 2015 FAIRS

TIBO-2015 telecommunications trade fairs were held on the 22-25th of April this year in Minsk, Belarus. Interestingly, this is the largest exhibition of this kind in Belarus, which takes place once a year and involves all the major manufacturers, distributors, installers and telecom operators in the territory of the CIS.
Certainly, FIBRAIN couldn't have missed such occasion to meet with potential customers and present our solutions& product portfolio. Therefore, our employees had the opportunity to participate in a seminar organized by the local partners involved in the distribution of products in the local market. The participants had the opportunity to test and verify FIBRAIN products in practice, with particular emphasis on LogiWIRE multimedia system. There was also a possibility to take part in the training for FibrainDATA installers and obtain a certificate confirming the ability to perform the installation work covered by a 25-year warranty period.



FIRST EDITION OF "INNVOATIVE SOLUTIONS FOR THE BUILDING SECTOR" CONFERENCE

First edition of INNOVATIVE SOLUTION FOR THE BUILDING SECTOR took place in Dwór Kombornia on 11-12nd June. The conference was held and organized by FIBRAIN, Kontakt-Simon, ML System and Miwi-Urmet. The main aim of the conference was to present the various parts of building sector such as ICT, photovoltaics, security, electro&installation equipment as well as exchange of experiences and meeting new business partners.

We would like to thank all of the guest who actively participated in this event.



NEW BRANCH IN SOPOT!

We are pleased to inform that now our company has already opened a new branch in the north of Poland, at the beautiful Baltic sea, in Sopot. The building is located at Aleja Niepodległości 658/1. It's not the end of surprises! Especially for our customers from Wrocław and a nearby area a group of Sale representative are at your service. Contact details can be found on our website or in Contact details section.



HUNT RUN 2015

FIBRAIN team proved to be true wild boar - in the murderous heat our team finished the run on the 26th, 94th, and 95th place, amongst more than 300 participants. In their own group our participants took respectively the 1st, 4th and 5th place!

Hunt Run is organized once a year and it is not a usual run as it is full of challenging obstacles. The event takes place on a huge 60-hectare site of Jura Park in Bałtów. At a distance of 7 km a numerous obstacles that require not only excellent condition, but physical strength too, are prepared. All the contestants had to face crawling in the mud under barbed wire, climbing on the ropes or in the gullies and rocks as well as run in the thick forest.

It is worth mentioning that for our team this run was the first one in this type of event.



FIBRAIN TEAM - CHAMPION IN THE FIRST LEAGUE „LIGA FIRM RZESZÓW" IN SPRING/SUMMER 2015 SEASON

Last games in the First League in spring/summer 2105 season, despite final results, were evenly very matched. In the rookies match, the champion of the First League- Fibrain team in the last part of the game was way ahead of ZWSE Rzeszów team in scores, and finally won 4:1. Throughout a whole match, ZWSE team was fighting as equals, not as a champion with a relegated team. In the second match, for a long time Praktiker Rzeszów was strongly resisting Eleven Łańcut. Quick responses for lost goals by both teams, made a whole game extremely interesting for the viewers. However, because of lack of substitutes in Praktiker Rzeszów, the footballers were not strong enough, which was used by their competitors Eleven Łańcut who finally won 10:5.




KraussMaffei
CX 250-1400
BluePower
KraussMaffei
BluePower
CX 110-380



New manufacturing centre - Plastic Injection Molding Centre

FIBRAIN, a world-class leader in innovative fiber optic manufacturing & solutions, opened a new Plastic Injection Manufacturing Center, which is located in Zaczernie (Podkarpackie region) close to Rzeszów International Airport and A4 highway.

New Center specializes in manufacturing highest quality plastic parts for the telecommunications industry. As our center is equipped with state of the art equipment and machines, we have a wide range of manufacturing capabilities.

FIBRAIN is continually investing in the latest, most technologically advanced and microprocessor-controlled injection molding machines to obtain high-quality products and meet ever increasing expectations of our customers.
We support projects comprehensively, from an idea to a ready-to-use product. Therefore, our offer includes marking products with the logo of a customer and installation of multi-component products. Cooperation with a customer starts from analyzing their needs until a final concept of a product is created.

Thanks to dynamic development, FIRBAIN invests in people, trainings and employ new staff.



At present, we have a few KRAUSS - MAFFEI injection molding machines with clamping forces from 50 to 550 tons, specializing in manufacturing injection molding of technical thermoplastics for the needs of ICT sector.

Therefore Plastic Injection Molding Centre is equipped with state-of-the art equipment such as dosing stations from Piovan (Muesham), which ensure proper drying, dosing and transport of materials. The highest quality of our components, made of plastics with hygroscopic characteristics, is guaranteed by dehumidifiers and central dosing system. We also posses low speed granulators, temperature controllers, whereas to cool hydraulic injection molding machines and molds we use a central cooling system. Certainly we purchase and equip our Center with other components on the ongoing basis.
So far we have manufactured a few products such as fiber optic splice cassette or customer outlets. New components are being designer, and soon we will be able to launch next part of products, amongst others, fiber optic closures and fiber organizers.



You don't have to be born as a Managing Director to become one

Interview with Wiesław Marczak - a new Managing Director of the Plastic Injection Molding Centre. He will tell us more on his professional carrier in FIBRAIN, plans for the future, ambitions and interests.

We are very grateful, that you found some time to talk with us. You are a great example of a person, who has come through the ranks and has developed in various fields. How did it all start?

This magnificent adventure started 10 years ago. In 2005 I started working in a Technical Department and dealing with return of damaged or faulty goods. The dynamic development of the company in the field of telecommunications led in 2007 to establishment a new unit in the organizational structure, which was responsible for dealing with technical support in the field of optical networks. I had an opportunity to create and develop this unit up to 2011. Then, in the same year the Management Board took a decision to create a Design Department, where on so called "a drawing board" we started to design our products so they could be later available in our product portfolio offer. Since March 2014, I have been working as a Managing Director of the new Manufacturing Centre, whose building started in the last year and has been operating since March this year.

How do you feel in a new positions as a Managing Director in the new Manufacturing Centre? Could you tell us more about this place and expectations you have towards yourself and other employees?

On one hand, the new position is quite a challenge to me, but on the other hand such challenges motivate me and help to grow within the company. Manufacturing Centre in Zaczernie is the biggest Centre of this kind in this part of Europe, which includes Connectivity manufacturing on a much bigger scale, than ever before. Therefore, in our new Centre, manufacturing of plastics takes place. Thus now, we are a comprehensive manufacturer of fiber optic splice cassettes, customer outlets etc.



Our goal is to produce a whole range of high quality fiber optic components.

In addition to the aforementioned activities, we also perform a lot of challenging and interesting research projects in the Laboratory Department in our Centre in Zaczernie. As a Managing Director I expect from my employees, colleagues and obviously from myself active involvement and commitment in the given duties or projects as well as continuous improvement. A very important aspect for me is the effective communication, which facilitates team building, thus the company grows and develops.

Well, you have been working in FIBRAIN for several years, do you remember one thing that surprised you the most during this time?

I think that a positive surprise for me was the decision of the Board to build the Manufacturing Centre of Fiber Technology Laboratory in Jasionka as the largest center in this part of Europe. This Production plant has been developing on the ongoing basis, thus it can offer more comprehensive portfolio of fiber optic cables.

Which was the most challenging and difficult task, which you had to face with?

Currently, I stand before such a challenge, but as I mentioned earlier there is nothing better for the development of own professional carrier as challenges of such a scale.

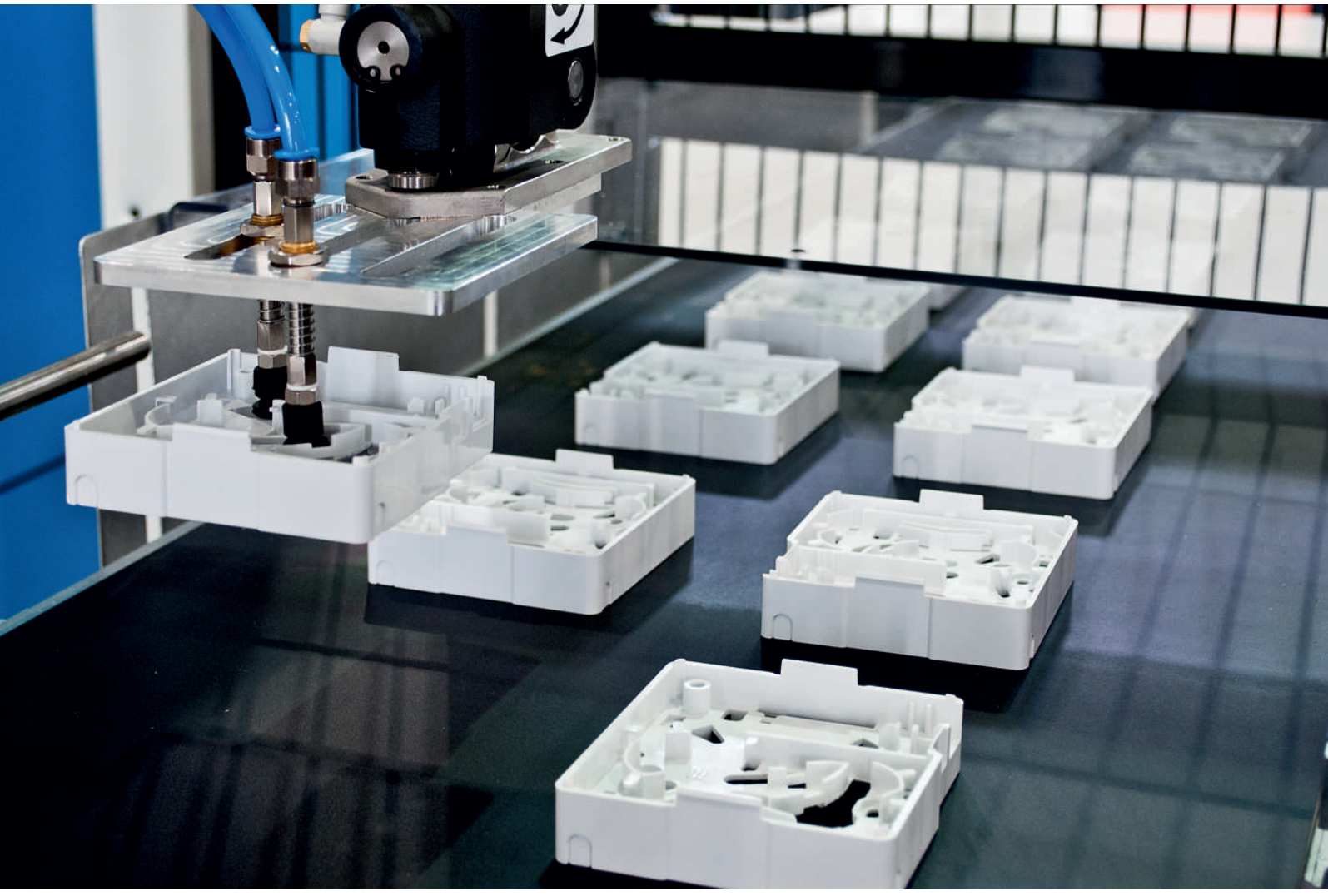
What gives you greatest satisfaction at work?

Honestly speaking, work is my passion, and if you fulfill your passions, it will bring you to the greatest satisfaction.

We know that you are a faithful supporter of Asseco Resovia volleyball team, besides this hobby, do you any other interest that your practice in your spare time?

That's true, I am a big fan of our champions Asseco Resovia players, however apart from doing sports, even though it cannot be clearly seen when you look at me, I have other interests too. One of them is fish keeping and music as man shall not be solely interested in sport. As I am a graduate of the Music School, musical instruments are not a mystery to me, thus I take every opportunity whenever it's possible to pursue this hobby. Perhaps, I am not the only fan of music in our company, so why not create FIBRAIN BAND? Besides music, I also find some time for my another passion, which is electronics, as it is my profession. For a lot of years, before I started working in FIBRAIN, I was dealing with electronics. At the moment I am only trying to construct simple system performing the logical functions, commonly known as drivers. You may wonder, how I find time for all these activities? I think that it' only a matter of good time management.





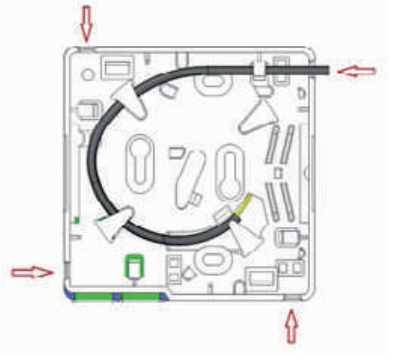
New Customer Outlet VFTO-E1

A completely new and tailored made solution for operators who appreciate innovative design, time&place saving solutions.

Fibrain VFTO-E1 Customer outlet is another innovative product which has been specifically constructed for FTTH solutions in which functionality is one of the key elements. Designed to reduce time and minimize the amount of space during installation while maintaining a modern and compact design. Fibrain VFTO-E1 Customer outlet is designed for FTTH networks as a termination point of the optical duct for max. 4 fibers.

Our outlet facilitates placing cables of 4 mm and connecting them with fiber optic pigtails with the use fusion and mechanical splices. Therefore, it is compatible with Rapid Connector solutions, including mechanic splices placed on DCY cable.

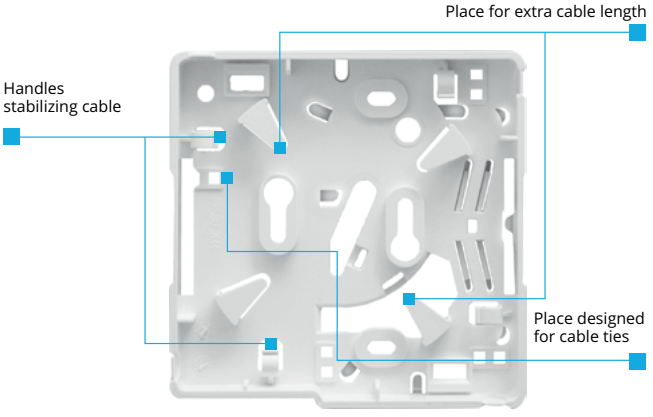
The unquestionable advantage of our new Customer outlet is the intuitive system of fibers management inside the outlet. The outlet is equipped with 4 input ports that facilitate placing a cable in the selected configuration. Outer part of an organizer is designed to place and store cable appropriately. Handles and place for cable ties not only reduce the installation time significantly, but also facilitate cable placing.



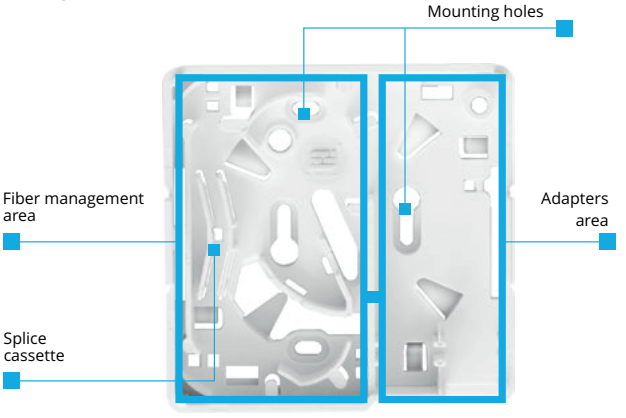


Inner part of the organizer has been enriched with the series of mounting holes, thus the outlet is a very functional device. Therefore, the outlet is equipped with splice cassette, which reduces potential fiber damages or place for fiber storage. It is also worth mentioning that the access to the inner part of the organizer is very easy by using clamping fasteners of the cover.

Outer part



Inner part



Clamping fasteners facilitate access to the inside



Mounting adapter on a DIN rail



Parameter	Description
Material	ABS UL94-V0
DIN adapter material	PA6 GF UL94-V0
Dimensions (s)x(w)x(g) [mm]:	85x85x28
Temperature:	-20° C – +50° C
Protection level:	IP40/IK05 to inner applications
Mounting:	inner, wall, rail (DIN standard)
Cassette capacity:	4 fusions, 2 mechanic or 4 ANT splices
Fibers' type:	bending radius 15 mm, compatible with A1, A2, A3, B3 standards
Length of extra fiber:	900 µm – 100 cm fiber in a outlet 250 µm – 200 cm fiber in a outlet
Cable entries:	1 entry on each part of a outlet (1 port on a side) entries from inside part of a outlet (mounting on a flush mount outletes) all entry ports are defined by removing the blind adapter max. diameter of a cable: 4 mm

Tabela 1. Technical data of Customer outlet VFTO-E1

Applications

- Distribution networks
- FTTH networks with EAC cables
- Last mile networks
- Terminations of FTTH networks

Features & benefits

- Compact and innovative design
- Inside applications
- Wide range of fiber optic adapters including adapter with inner or outer shutters
- Description field for adapters on a top part of a outlet with a transparent flip cover
- Available in a subscriber option (* reduce the labour costs)
- Possibility to personalize the outlet (logo)
- Possibility to mount a outlet on a DIN rail
- Adapter facilitates mounting the outlet on a wall

VFTO-E1 Customer outlet is available in a few options to meet individual requirements of our customers. The standard and most common option is the not-equipped one. Other options include various outletes, depending on our customer needs and requirements.

The outlet can be equipped with 4 fiber optic pigtails terminated with PC or APC connectors and with flangless fiber optic adapters of SC, LC or E2000 type. Specified data concerning a given adapter type are available in the Technical sheet. It is also worth bearing in mind that the outlet facilitates mounting flangless adapters with outer or inner shutter, which protects sight against any potential damages.

Another option is a pre-connectorized outlet with a cable. Wide variety of cables are available to meet even the highest needs and requirements of our customers: VC-D20, VC-D30, VC-D40, VC-DCY or AERO DF cable. Standard cable lengths are: 15 m, 30 m and 50 m. Other lengths are available after consulting with our Sales Department.

Fibrain VFTO-E1 Customer outlet is also available in Rapid Outlet solution, in which extra cable length is wound on a cardboard drum and the whole is placed on an outer outlet. Rapid Outlet system facilitates installing and cable placing, and therefore protects against any potential damage during transport or storage.

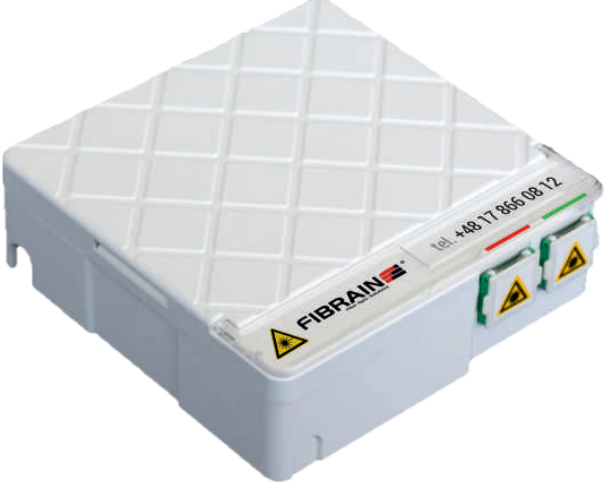






To meet or even exceed expectations of our customers we have introduced the option to personalize a outlet by a possibility of printing a logo. VFTO-E1 is available in each of the above described options which is without a logo, with the FIBRAIN logo or printable operator logo. Further details concerning maximum print, the number of colours and size are available and can be discussed with our Sales Department.

Fibrain VFTO-E1 Customer outlet is a perfect solution to be used in FTTH systems, where not only functionality plays an important role, but also visual and compact design. We offer a completely functional device with a wide range of available options. To finish and put the description of a outlet in a nutshell, it's so small but such a smart device.



FIBRAIN supports students and invests in higher education

We are pleased to inform that FIBRAIN has supplied Warsaw University of Technology, precisely Faculty of Electronics and Information Technology, with EDFA and Raman optical amplifiers. The solution has been specifically designed to facilitate configuration of laboratory posts, thus students can experiment and examine various mechanical as well as physical parameters.
Certainly, this equipment is a good beginning for further development of laboratory posts at the University.

Below, we present a short interview with Phd Krzysztof Andersen, a manager of Fiber Optic Laboratory IMiO PW.

Could you tell us a bit more, in what way and how the new laboratories will help the University?
Photonic Laboratories of the Institute of Microelectronics and Optoelectronics Warsaw University of Technology facilitate teaching, and implementation of research in the design and comprehensive characterization of active and passive elements of the physical layer of fiber optic networks, engineering / technology fiber lasers, photonics nomenclature, spectroscopy of optically active materials or photovoltaics.

Do you actually have something to be proud when it comes to laboratories?
The potential of labs gives a possibility to study the parameters of classic optical fibers (fiber, planar, passive and active) and special (including microstructured optical fibers, glass and polymer), couplers, multiplexers and demultiplexers, optics etc. The laboratory is also prepared to design and characterize comprehensively the active components of fiber optic lines - including amplifiers and sources of coherent and incoherent radiation.

And what are the plans for further development of IMiO?
Currently IMiO is intensively developing the potential of educational laboratories within the framework of the Faculty of Electronics and Information Technology project "Development of Warsaw University of Technology Faculty of Electronics and the establishment a network of educational laboratories", financed by the European Union from the European Regional Development Fund under the Infrastructure and Environment Program. The project created laboratories where students of the Faculty of Electronics and Information Techonology, but also the Department of Physics, Faculty of Mechatronics and the Faculty of Management will be able to familiarize themselves with the issues of optical spectroscopy, laser technology, fiber optic components and systems, optical sensors and image sensors.

Where and how specifically our amplifiers will be used?
During the classes in the field of fiber optic techniques, a set a set of amplifiers EDFA (Erbium Doped Fiber Amplifier) and FRA (Fiber Raman Amplifier), designed and manufactured by Fibrain company has been then purchased, thus students will have the chance to familiarize themselves with the construction and operation of one of the most important active devices in telecommunications network. Thanks to its modular and open design kits, students will have the chance to configure any systems, so as to obtain specific characteristics. Kits can be also easily used to examine the parameters of simple fiber laser systems.

When the first students will be able to use it?
First classes from the fiber optic technology fiber (e.g. in splicing optical fibers, fiber attenuation studies of passive and active, and construction of simple optical amplifiers) have been conducted for a group of students of the Faculty of Physics and the Faculty of Electronics and Information Technology as early as mid-May. The full launch of laboratories is planned for the second half of October 2015.

Thank you very much for the interview and wish you all the best in the future!



Krzysztof Anders, an assistant at the Department of Optoelectronics, Institute of Microelectronics and Optoelectronics of Warsaw University of Technology, member of the SPIE and Photonics Society of Poland, co-author of nearly 100 publications and conference presentations in the field of photonics, head of the Laboratory of Photonics Fiber.



Fujikura LZM-100 fusion splicer–photonic in Optoelectronics and Fiber Optics Measurements Laboratory

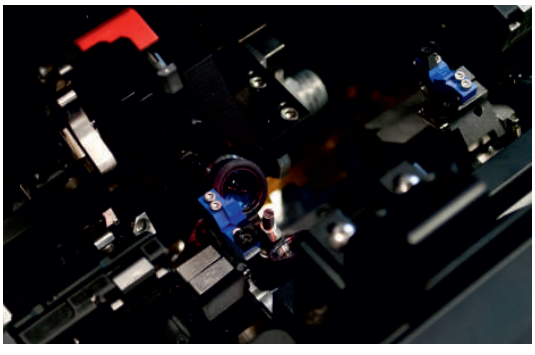
In the last edition of our INSIDE you could have read about short but interesting article about the Optoelectronics and Fiber Optics Measurements Laboratory. Today we present our latest "toy" which is now present in our Laboratory. Our **Fujikura LZM-100 fusion splicer** is state of the art equipment, which provides the possibility of splicing wide range of fibers. As we want to be the leaders in every field, our company is the only one in Poland who has such kind of a splicer! Probably, you are wondering what's so special. At first, it is not only the splicer. **Actually, the Fujikura LZM-100 splicer is a universal station for processing the glass, which has got a wide range of applications.**

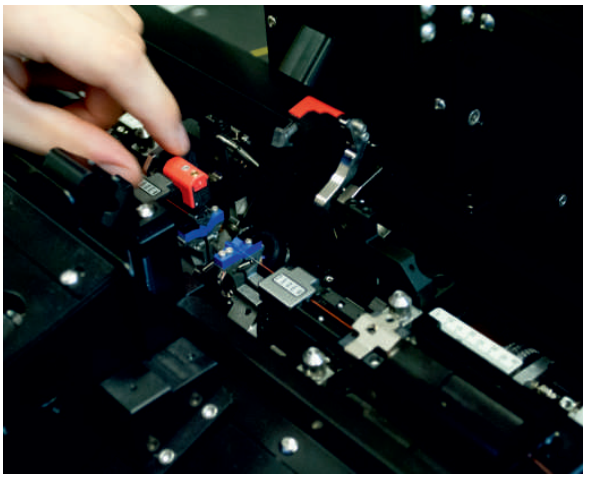
Splicing or adiabatic tapering (to create mode field adapters or pump combiners) can be performed with glass diameters of 2.3 mm or more. The high resolution optical analysis system works in conjunction with on-board firmware for fully automatic splicing, tapering and other glass shaping processes.

One of the most distinctive feature, comparing to other equipment of this kind, is the heat source used to shape the glass.

LZM-100 is a glass processing and splicing system that uses a CO2 laser heat source rather than electrodes, ensuring repeatable performance and low maintenance, and eliminating electrode or filament maintenance and instability. Undoubtedly, CO2 laser provides extremely stable operation and greatly reduces the need for periodic calibration.

The principle of splicing with CO2 is similar to heating food in the microwave - Si-O bindings absorb the photons of 10.5 µm wavelength. This creates a high unity of heating -







this is especially important when working with dissimilar sized fiber diameters. The laser life amounts approx. to 5 years, after this time which you just need to fill up again to regain its full capacity - which in practice means a lot lower operating costs, because there is no need to replace the electrodes or filaments.

Thanks to an option of observing fiber's face during positioning, a rotating table and a universal system of adjustable V-grooves, it is possible to adjust and weld a very complex fibers, **for example splicing G.652D fibers with any outer core of multicore fibers, not talking about the splicing fibers**, not even mentioning about splicing photonics or polarization fibers. Therefore, there is also the possibility of active alignment, when the splicer minimizes the losses in positioning.

You are probably wondering, what the station could be still useful for? Now it is possible to produce for example the lens prism-shaped rotationally symmetric, which are used to introduce light from the laser chip to the fiber or connectors **pumping energy from 19 diodes pumping source to a single active fiber**. Due to processing glass capillary tubes, it is possible to produce **hypodermic needles** for medical applications. By proper splicing or adiabatic tapering to generate **mode field adapters** , the splice of dissimilar sized fiber diameters can be performed.

Similarly, one can use a LZM-100 welder to expand the mode field **(Core Thermal Expansion)** which may be used to produce **connectors resistant to extremely high optical power**. It is possible to splice the fibers of very different lenses with each other, for example Siliceous with so called ZBLAN glasses, or even **glass with plastic**.

At the moment, we are working on the project, whose aim is to produce the world's first glass fiber. Interestingly, the project, and being more precise its outcome, is very important for our colleagues from Fiber Optic Department, as it could facilitate their work in the field.

Keep your fingers crossed for it (and other) applications!



Blocking filters designed for CATV FTTH networks

Majority of operators, investing in FTTH networks, bear in mind the possibilities of fiber optic cable and deliver Triple Play services (the Internet, phone, TV). The TV in FTTH network might be delivered as IPTV, CATV, which is RF overlay.

In FTTH networks, the Internet is supplied with the use of GPON technology, using 1310 nm wavelength for upstream and 1490 nm for downstream, the CATV TV is most often transmitted in the same fiber with the use 1550 nm wavelength. To perform this service, one needs to have CATV receiver 1550nm and very often EDFA optical amplifier. The signal is then transmitted as broadcast, which means that every subscriber receives it, regardless of the fact whether they have bought the television service. As a matter of fact, the subscriber who did not buy the service automatically does not have the receiver to make use of the services, nevertheless a lot of operators, especially cable operators prefer to cut off the signal.

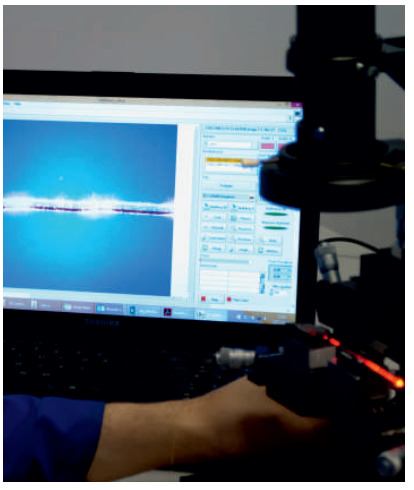
Traditionally, cutting off the signals in concentric networks would be done with the use of band-pass filters screwed in the cabinet corresponding to a given subscriber. In fiber optic networks it is possible to use optical filters, which block the 1550 nm wavelength and enable to pass 1310 and 1490 nm wavelength.

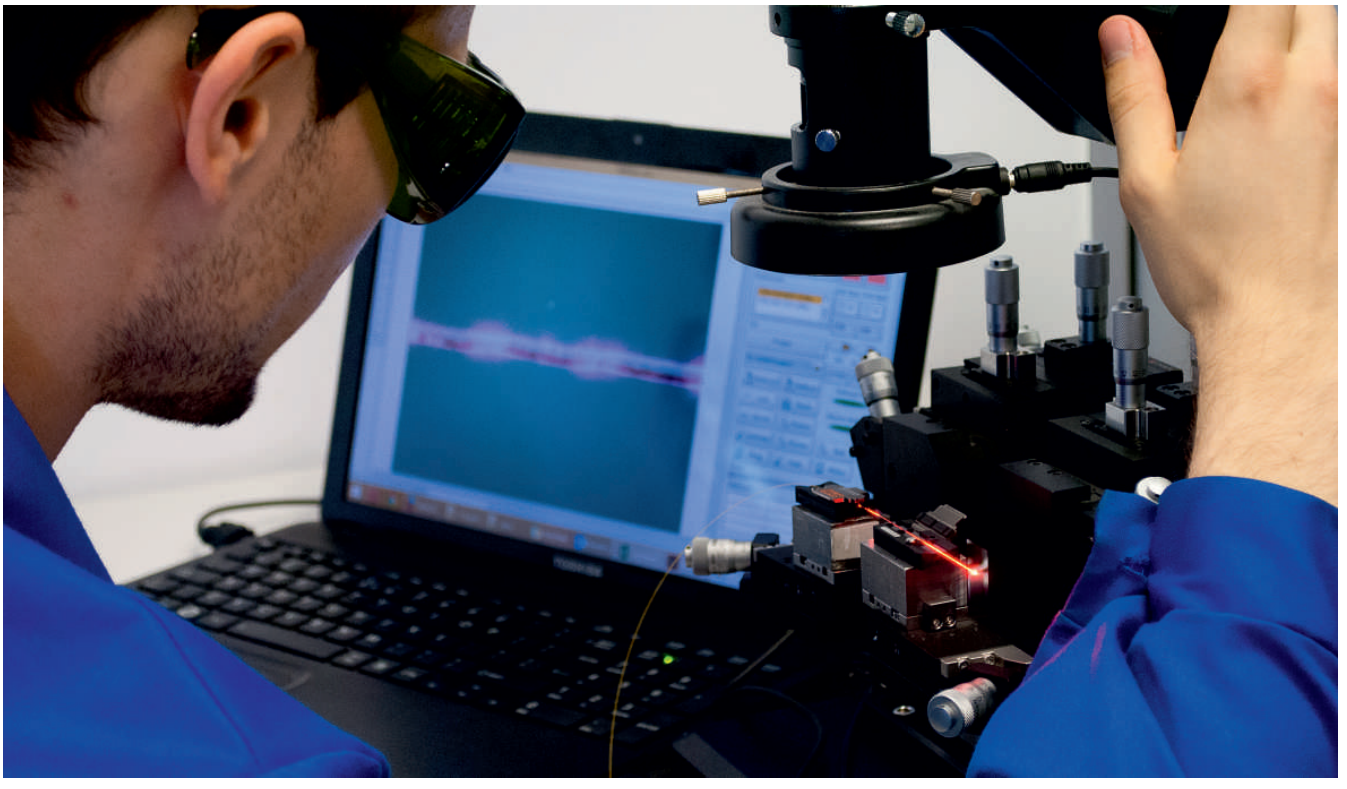
Technologies concerning making optical fibers TFF (thin film filters), FBG (fiber Bragg grating) and WDM FBT (fused biconical tapering) can be characterized by high price (TFF and FBG), which at the same time makes the costs of a whole installation more expensive (which is often difficult to be accepted by the operator) or not sufficient optical parameters (in case of WDM couplers).

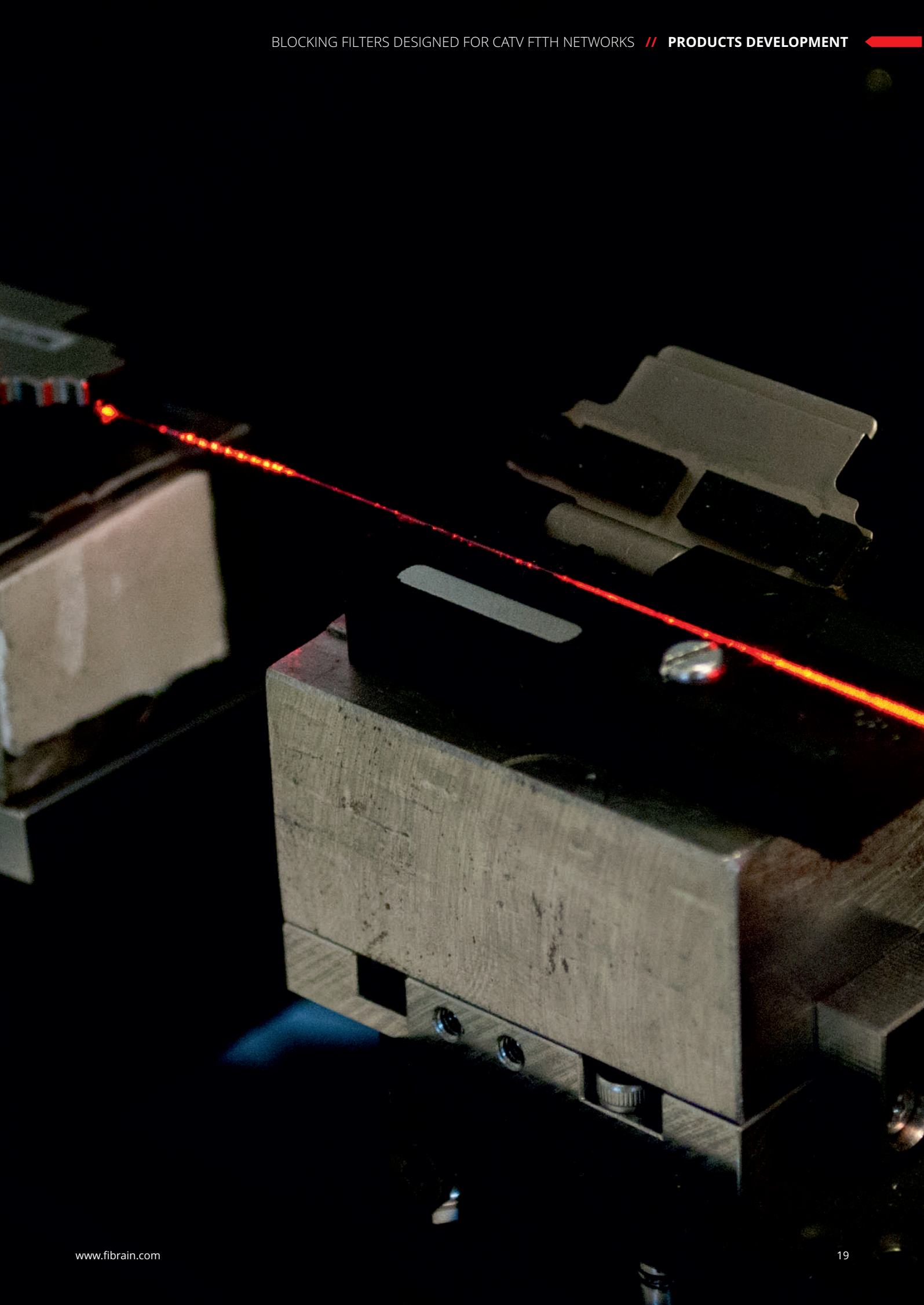
In addition, in the case of FBG filters, wave of 1550 nm is reflected and propagates back toward the transmitter, which can significantly reduce signal quality throughout the network significantly.

Responding to market demand for low-cost filters to block 1550 nm wavelength, Fibrain has introduced cutting-edge technology filters using LPG (called. Long period grating). LPG blocking filters 1550 nm are two-port instruments , being inserted in the track, thus they scatter 1550 nm wave in such a way that it does not reach the subscriber and is not reflected back to the transmitter. LPG filters are monolithic and fibrous filters, produced exclusively with optical fiber processing methods so they can be characterized by low production costs and low insertion loss. Fibrain 1550 nm LPG filters are fully compatible with GPON transmission.

Therefore, due to the possibilities of this technology, Fibrain is able to offer specialized LPG filters to block other wavelengths too. In case of such highly specialized applications, please contact our company.





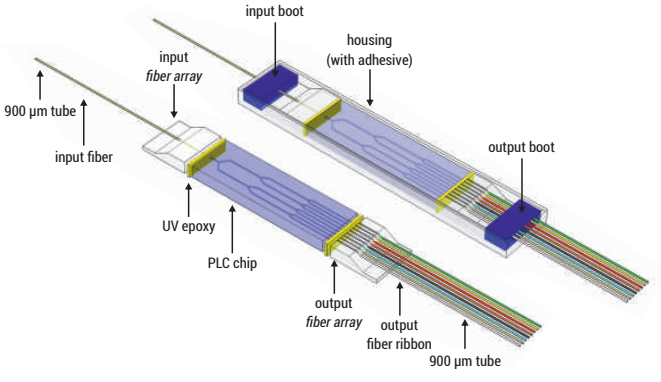




MythBusters, In PLC land - epilogue

PLC splitters are passive optical dividers performed in planar technology used to build optical networks, most often used to build PON (passive optical networks) as they constitute their key elements. Not so long ago, quite unknown PLC splitters were expanded and have become a daily bread for majority of operators and installers. Certainly, lower prices and higher number of suppliers facilitated the splitters' availability. Now, PLC splitters have become so popular that people started to treat them as nails- everyday thing, sold in great quantities and easy to use. With this approach in mind, of course, the only parameter on which is still worth paying attention to, is the price. **In the past we have already discussed PLC splitters, but acceding to thousands of requests from fans decided to show how high quality splitters should be produced.**

The heroes from your childhood, **MythBusters PLC** are back! In response to the stacks of letters submitted for our editorial, we decided to write an epilogue to our trilogy, which has gained extraordinary popularity like the first series of Star Wars, and has become a little more famous than Trilogy by Sienkiewicz. This time with a positive message, as we have been accused of being able to criticize easily, as everyone can do it, but it is harder to propose something constructive. Perhaps it is more difficult, but we are able to do it - here are the most important secrets of the production of high quality splitters PLC.



Scheme 1. PLC splitter components



Mystery 1 – Cleanliness, cleanliness, cleanliness

As we have mentioned several times, the purity concerning the production of PLC splitters is crucial. In PLC chips waveguides have dimensions of 8 microns, roughly the same diameter has a mode in a single-mode fiber (for comparison, is about 25 times less than the diameter of a human hair). As our faithful readers know (and as it can be seen in diagram in Fig. 1), **PLC splitter consists of many parts and even the smallest dust cannot get between the chip and a fiber array**. If it happens, it will automatically result in increased attenuation and deterioration of uniformity, and will always worse resistance to weather conditions. It is therefore absolutely essential to clean items **carefully**, just before positioning a splitter, **control the purity** of the already cleaned items and manufacturing in cleanroom. The clean space (cleanroom) is necessary because even in seemingly clean room office, hundreds of thousands invisible to the human eye dust float in the air, most of them much bigger than 8 µm.
The outcome is simple, even the garage in the Far East, which has been swept carefully does not provide air purity.





Mystery 2 – Equipment and facilities

Let's suppose that a Fast Eastern garage producing PLC splitters has been cleaned so precisely that it has become a cleanroom. Is it then enough to produce high quality splitters? Honestly speaking, not really, as therefore the **specialized equipment** still matters, because high quality splitters cannot be produced with the use of an on anvil and a hammer (contrary to the opinions of some people). Firstly, as we have already mentioned, you need the proper equipment to be used for cleaning (and it's not about a pan scourer), and equipment for testing the purity of our elements. Secondly, high quality measuring equipment will be useful - multichannel optical power meter IL, PDL and RL for at least 3 wavelengths costs thousands of euros and definitely low-cost producer will possess such meter, and without it, he is not able to measure their products appropriately (which does not mean that something in the test report is not written). Thirdly, the consistent production of splitters needs the positioning stations- that require skillful operators and as a result their use is reflected in the poor reproducibility of the splitters' quality (especially if the operator submits the notice of termination or had a name day his mother-in-law, and interestingly there are such operators, who celebrate the mother-in-law name's day every week).


AUTO
DOWN
POWER
UP
MENU

Mystery 3 – Control, control, control

Neither of the manufacturers produce all the necessary components, as for example all manufacturers purchase PLC chips and UV adhesives, and most of the tubes and elements of fiber array. We in our Fibrain splitters use own 900 µm and 2.0 mm tubes, so it is easier to ensure consistent quality of these elements. Nevertheless, **all of the elements need to be carefully verified in each delivery**. And obviously, specialized equipment to perform the measurement is a must. Even the most trusted and proven supplier may slip up, then proper quality control system of PLC splitters can catch a mistake. Striving for perfection does not accept any limitations - we measure, among others, the roughness of fiber array elements, or a size of fiber mode , to make sure that the fiber is fully compatible with G.652D (undoubtedly checking such trifle as for instance minimum bend radius is itself easily understood).



Mystery 4 – Even more control

Even when all suppliers of components will hate us and look with panic on the phone when we call to order a new batch of chips, it may not be enough to ensure the quality of the final product (but at least it gives understandable satisfaction, which also has its value). So far, we have not mentioned almost anything about **our own control of the process and end products**, whereas it is absolutely crucial aspect in quality assurance system. In case of Fibrain splitters, the internal **control consists of 4 levels** and is performed by independent units:

1. Technologists check the general agreement of the manufacturing process with the instructions.

2. Specialists from the Measurement Unit measure each piece individually, using the unique IL (insertion loss), RL (return loss) and PDL (polarization dependent loss) optical power meters which measure on 5 wavelengths independently.

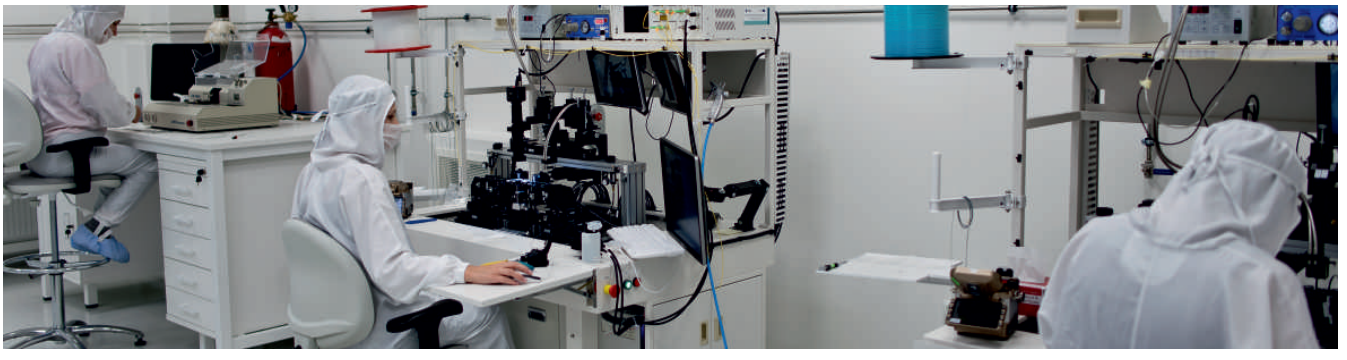
3. Quality Department verifies products which are prior to the shipment carefully, and therefore assesses whether the item has been damaged during packing, and also if batch complies with the order.

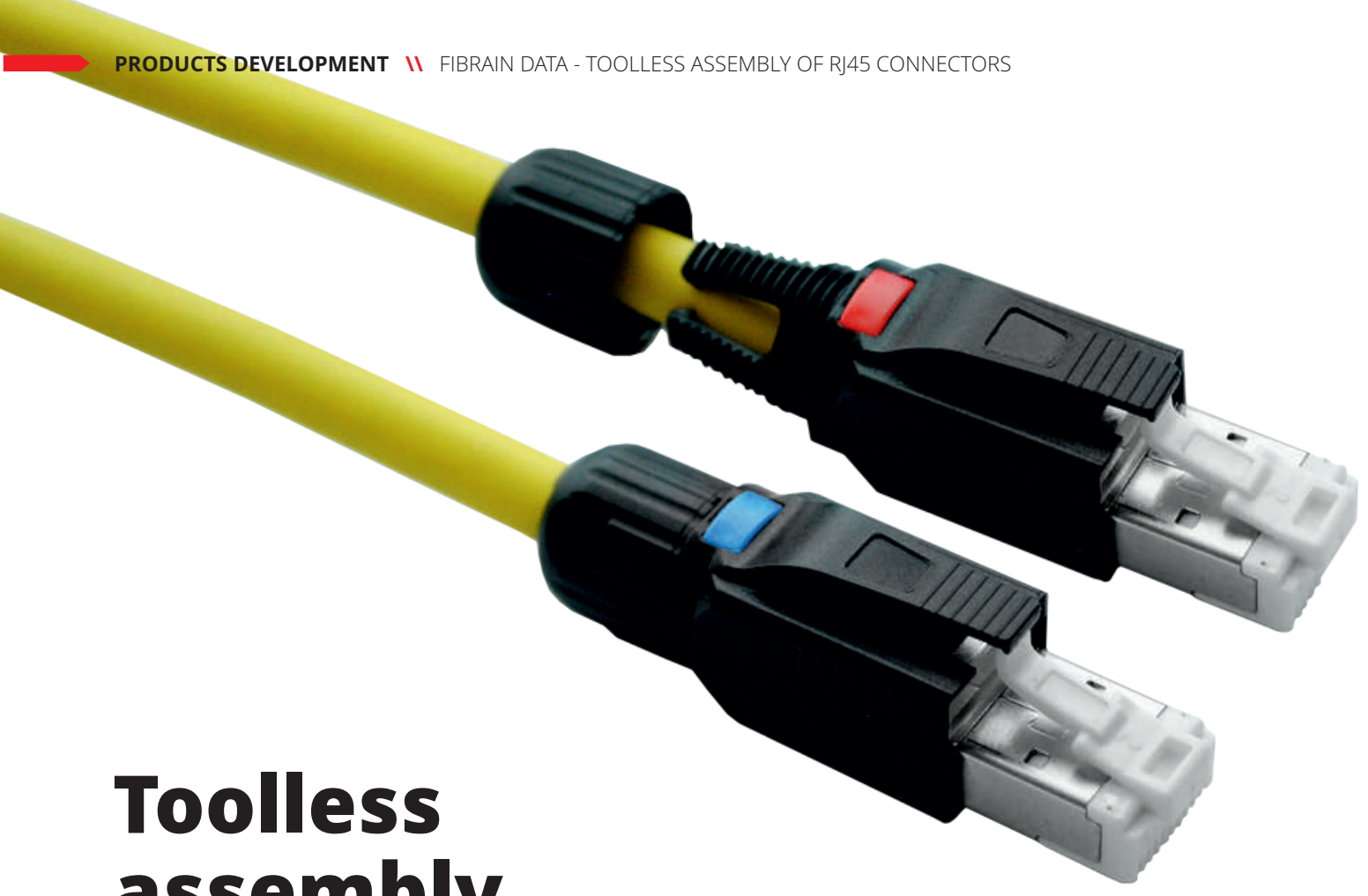
4. Finally, the Laboratory takes samples of splitters at random and subjects them to the full range of tests, including for example attenuation change tests at -40°C, resistance to prolonged immersion in acidic water or the fall.

All of these operations are performed to minimize the risk that any fault is not detected by the manufacturer, but by the subscriber during the final match of FIFA World Cup, in which (as we know it from a good source, the information is certain), will play Poland against Germany .

As it would be very silly if you might miss this match because of faulty PLC splitter, right?

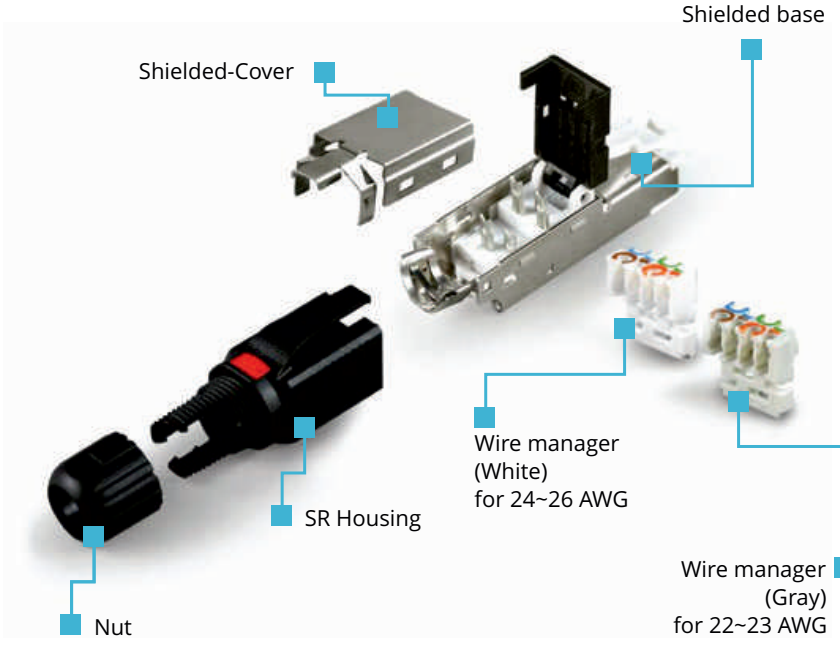




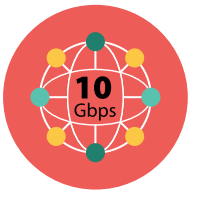


Toolless assembly of RJ45 connectors

One of the most common obstacle in structured network installations are dimensions. Not always a network designer is able to foresee all the measurements of the given tracks. Consequently, installers have a lot of difficulties and that's the end with half-measures! Fibrain has already designed a new connector RJ-45 cat. 6A. Now, it is enough to measure a proper length of a cable, quickly terminate it with the use of RJ-45 connector and everything is ready!



Scheme 1. Toolless construction of RJ45 connectors



Bandwith 10Gbps

Component

- Connector - **RJ45**
- Connector type - **Shielded**
- Connector category - **Cat.6$_A$**
- Termination - **IDC**
- Protection level - **IP20**

Features

- Compact design
- 360° shielding to facilitate EMI/EMC
- Equipped with a strain relief
- Easy mounting

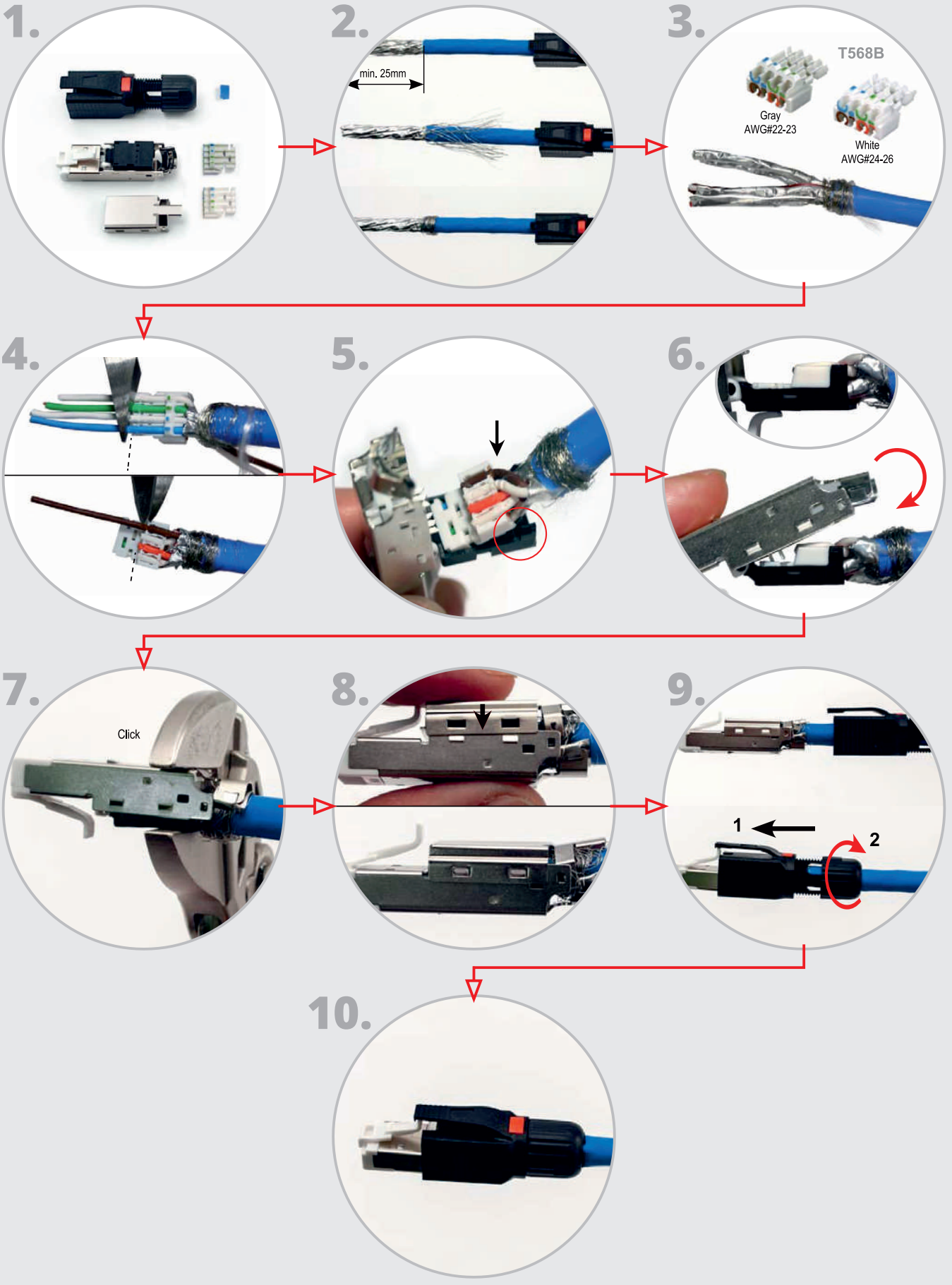
Applications

- IEEE 802.3an - **10GBASE-T**
- **CCTV**
- Industrial automation

Norms

- Qualiied Screened Class EA/Cat.6A
- Permanent Link & Channel ANSI/TIA-568-C.2
- IEC 60603-7-51
- ISO/IEC 11801 2.2 Edition
- CENELEC EN 50173-1:2013

Connectors provide mounting in the range of 22-23 and 24-26 AWG. Below, we present proper mounting of this connector in 10 steps.





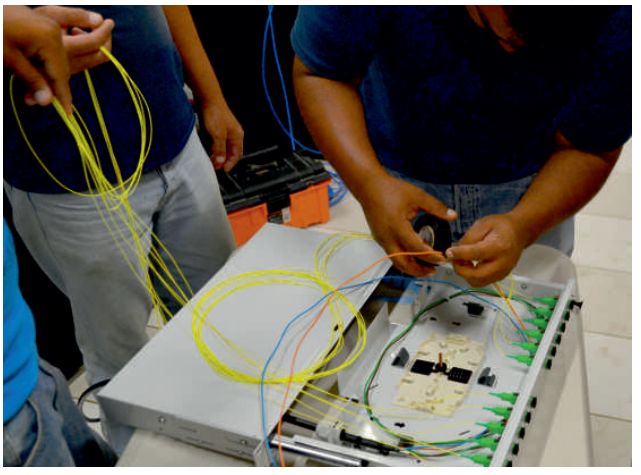
Mexican Adventure - that are Fibrain solutions in distant and prestigious holiday destinations in Mexico

Mexican Adventure - that are Fibrain solutions in distant and prestigious holiday destinations in Mexico
Cabo San Lucas, Mexico is a well-known and prestigious holiday destination. In such distant places, Fibrain FTTH highest quality solutions, namely triple play (Internet, telephone and television) were supplied for two new local centers. It is worth mentioning that the customer valued and desired not only premium quality of services, but also technical support during implementation. The project itself was demanding, because it concerned the passive and active infrastructure, trainings and the warranty. Moreover, a resort hotel and guest houses for visitors included the same solutions, which are typically used for multi-family units with plenty of endpoints and single-family villas, where infrastructure is similar like in a small town. Another challenge was quite complicated installation, some villas have 5 rooms with TV, all for the most demanding guests. It is also worth









emphasizing that our solutions are based on the GPON active devices from Dasan Network with the premium model of ONT WiFi, Fibrain GPON SFPS and CATV multiplexer. As for installing passive installation, very important, indeed crucial was the project that will ensure fast and stable connection, like a Lego structure. The main installation was made with use of BDC cable distribution points. When it comes to speed last mile, we offered our client a prefabricated cable fault BURRY-DAC and prefabricated drop cables, integrated with a can of subscriber VC-D40 and VFTO-E1. Yes selected range, certainly provide a fast and stable connection. Additionally, data centers are equipped with shelves splitters FPLC, with the possibility of future expansion.

DIAMANTE

Another place where Fibrain solutions are installed and ready to be used is Diamante. The area is located on the Pacific coast and sand dunes, stretching along the ocean. Diamante is a real paradise, that can be seen with the naked eye. Just six miles from downtown Cabo San Lucas, Diamante landscape offers not only stunning and picturesque scenery, but also the highest quality of service. In this part of the Pacific coast picturesque complex of luxury apartments and residences are located. What's more, in this place famous Tiger Woods designed golf course and opened El Cardonal for all lovers of this sport. These are just a few reasons that you can be captivated by this place. Therefore, we are very pleased that our customers trust us and our Fibrain brand, which was responsible for the installation and supply of materials. We believe that comprehensive and modern solutions as well as our Fibrain components reinforced the value of our installations.

ZATOKA CHILENO

This is the next place which cannot be ignored. Coastal utopia stretches along the most famous coast-Cabos. A place is known for its crystal clear waters, teeming coral reefs, sea turtles and many fish species. This is not the end, because lands on the coast were used to design golf courses, providing entertainment for all of residents and tourists. Among the golden beaches, often surrounded by interesting rock formations and exclusive residences, which stretch along the coast and wonderful views, everyone will undoubtedly find something for oneself.

This is another place where Fibrain premium quality components are installed. Owing to the fact that we have, and we offer an extensive portfolio of Fibrain products and solutions, we are confident that they will guarantee smooth work and operation, even in the toughest conditions.

FIBRAIN®
Fiber Optic Solutions

INSIDE

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