SIKORA EXTRA

Wire and Cable Magazine

Submarine cable with optical fibers for data transfer

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IT´S TIME TO SAVE MONEY.

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Next Events

- CabWire World Conference
  Nov 3rd, 2015
  Düsseldorf, Germany
  Lecture: "Undersea cables and EHV power cables require XLPE-material with a high level of purity"

- wire Düsseldorf
  Mar 4th – 8th, 2016
  Düsseldorf, Germany
  Booth 9 – A41

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f.l.: Dr. Christian Frank, Harry Prunk

Dear customers, colleagues and business partners,

Whether we are talking about international politics, the stock and financial markets or the several production plants all over the world – the topic "Saving" is everywhere and we can't imagine the daily business without it. For SIKORA "Saving" is also a major topic. Our measuring, control, inspection and sorting devices help you to save time, resources, planning, administration efforts and naturally costs.

How to save time for example is explained in our article regarding the innovative WIRE-TEMP 6050. The non-contact measuring device determines if temperature preheated wires and cables are at the exact temperature. Therefore, bad adhesion of the insulation or burning is prohibited.

Additionally, learn how to successfully integrate SIKORA X-RAY systems during the production of high-voltage and subsea cables in our leading article on "Optical Fiber Production". Resources can be saved during the start-up phase as the gauge head is installed directly after the extruder which makes defective production impossible. Furthermore, the display and control devices of the SIKORA ECOCONTROL Series enable a precise control of the production and therefore, offer the best possible result.

Have you heard about our individual maintenance program? Save time for complex planning regarding the reordering of spare parts or administrative efforts for the organization of training – SIKORA can take care of your devices and employee training. What we are offering in detail is explained in the SIKORA EXTRA area "Service".

You would like to know more about cost savings with SIKORA devices? Feel free to contact us at any time. We advise you individually, target oriented and with long-term experience – we help you find possibilities to optimize your production process.

Enjoy reading!

Sincerely,

Dr. Christian Frank
CEO of SIKORA AG

Harry Prunk
Member of the baord of SIKORA AG

1,000,000 KM OF OPTICAL FIBER CABLES IN THE OCEAN

SIKORA assures the quality of data transfer in the deep sea

Part 3: Process stability and reliability for subsea cable production

In the third and last part of our series "From optical fibers to subsea cables – quality assurance in the production process", we are taking a look at the manufacturing of the subsea cable. This cable also contains the fiber, of which the production process was described in the first part of the series. The manufacturing of optical fiber cables was introduced in the second part.

Subsea cables have already conquered the oceans for around 150 years. At the beginning, however, copper wires and insulation from gutta-percha were still in use. Today, modern optical fiber pairs are used for transatlantic data transmission. Therefore, data transmission rates of 160 gigabits per second can be reached. Subsea cables are also indispensable for the power supply sector. Due to the trend toward renewable energy, ever-increasing offshore wind farms are built off the coasts and the produced electricity has to be transported back to the mainland.

Subsea cables have to fulfill mainly two tasks: the transmission of energy and the transfer of data.

A wide range of cables can be used for this purpose. Whilst cables with a voltage of up to 150 kV are often used for the energy transmission of offshore wind farms, for example, islands in the Mediterranean Sea are connected to the electricity network with a voltage of 30-60 kV.

These cables, however, always have two things in common. They have to be manufactured for long distances with a minimum number of joints in order to avoid possible breakdown risks. Also, due to the high voltage and the difficult maintenance of subsea cables, the production process has to meet extremely high demands.

Quality and reliability for decades are considered a benchmark in this field.

Submarine cable with optical fibers for data transfer

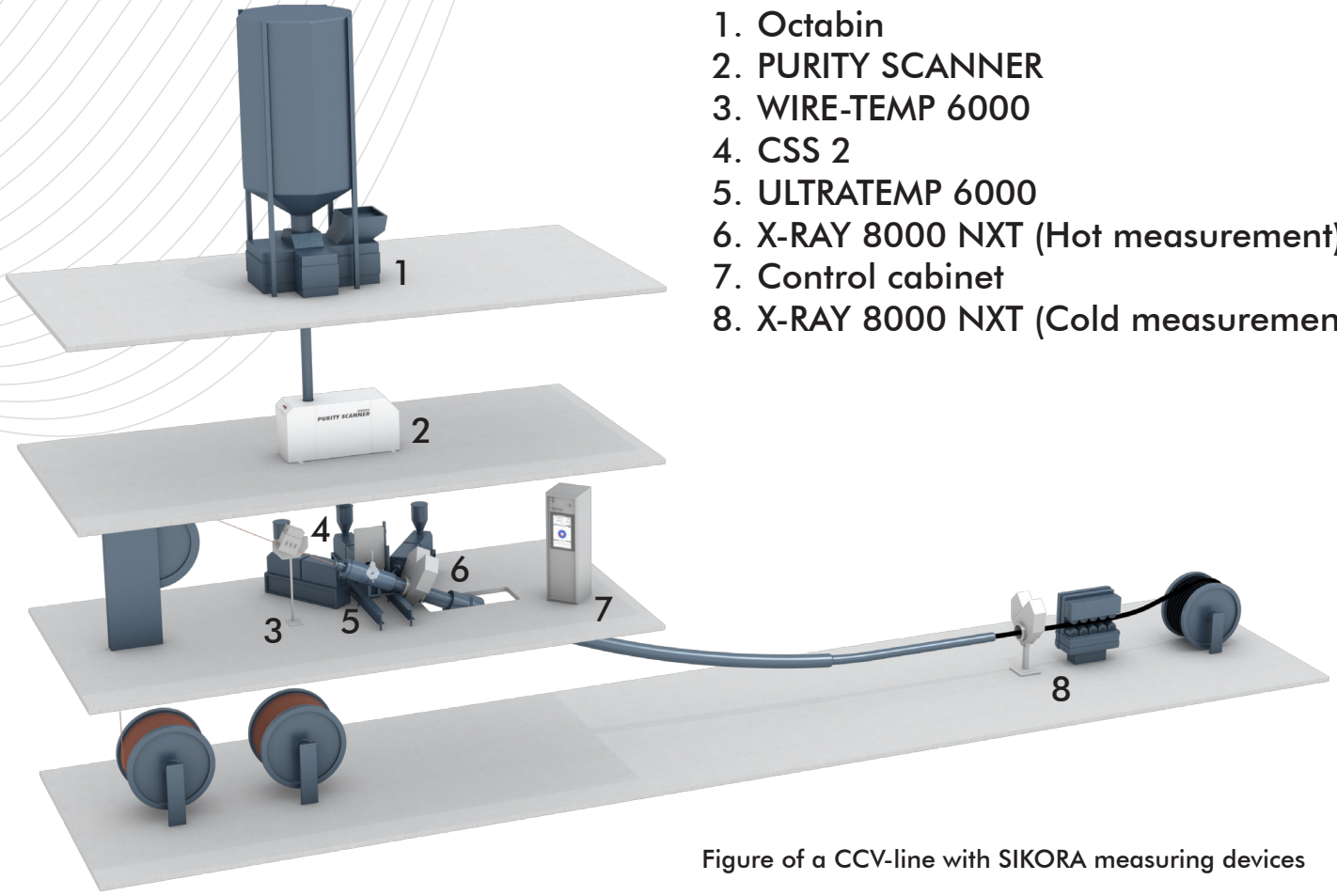

Figure of a CCV-line with SIKORA measuring devices

High voltage components

Subsea cables are fitted with special high voltage insulation materials of the utmost purity in order to meet the high quality demands. The majority are manufactured in CCV-lines (Catenary Continuous Vulcanization). In this field, X-ray technology from SIKORA has ensured a reliable quality control during the production process for more than two decades. The measuring devices, X-RAY 8000 NXT and X-RAY 6000, are especially interesting for the efficient measurement of the wall thickness of up to three insulation layers, the concentricity, the diameter and the ovality of XLPE cables already during the production process. Using the graphical visualization of measuring values on the display and control devices of the ECOCONTROL Series, the operator centers the crosshead to ensure the highest quality.

20 years ago, special devices had been used for the examination of the PE/XLPE melt in cable production lines. The SIKORA PURITY SCANNER now complements this process. The device inspects the raw material before entering the extrusion process and sorts out contaminated material. The PURITY SCANNER detects organic and metallic contaminations from 50 μm, with an effective throughput of up to several tons per hour.

Final quality assurance

SIKORA's measuring and control technology is also used in the following production processes in which the individual wires of the cables are twisted and coated. In order to control the correct compliance of the wall thickness of the outer layer the X-RAY 6000 devices are interesting. Furthermore, as subsea cables, for example, are often developed for the transfer of DC voltage, the high-voltage measuring devices of the SPARK 2000 Series are also interesting for the quality ensurance.

According to regulations, those cables have to be checked for bare spots and insulation errors. In this regard, the SIKORA sparktester SPARK 2000 is a useful tool to check the insulation. Pinholes, bare patches and other possible defects in the insulation can be detected while the dry cables are entering the bead chain electrode, directly after the cooling line. Therefore, the quality management is able to ensure that only flawless cables are being distributed.

Conclusion

In the three parts of our series "From optical fibers to subsea cables – quality assurance in the production process", we have shown solutions and potentials for the manufacturing of optical fiber with the highest quality, its processing to optical fiber cables as well as its use in high-voltage subsea cables. Due to SIKORA's measuring, control, detection and sorting technology, manufacturers of all three fields are able to reach highest quality and thus to meet the high demands of the industry.

All production data is stored and available for a comprehensive quality management

THINK BIG: WIRE-TEMP 6050

Non-contact temperature measurement for product diameters of 5.0 mm up to 50 mm

For the production of high-voltage cables, quality is an essential factor. Failures of the cable, for example, can not only cause loss of reputation, but also extremely high costs for the manufacturer. High-voltage cables are now equipped with cross-linkable polythylene insulation, XLPE*. The manufacturing of the cable and the cross-linking of the insulation are part of a continuous process in CCV or VCV*** lines.**

In order to generate the optimal cross-linking of PE insulation molecules, the XLPE material has to be heated in the above mentioned CV-lines to a defined temperature. The extruded cable is passing through a closed pressurized tube until all three layers of the insulation are completely heated and cross-linked.

To speed up this process and increase the efficiency of production, it is recommended to heat up the wire to approximately 100 to 120°C prior to entering the crosshead. Due to this method, the insulation is not only heated from the outside but also from the inside. Therefore, a faster cross linking of the plastic material is achieved.

In this context, the SIKORA temperature measuring device WIRE-TEMP 6050, for product diameters from 5.0 to 50 mm, offers reliable temperature measuring values. By using the measuring data, which is taken by the device directly after the conductor preheating, the operator is able to precisely adjust the heating of the conductor according to the calculated needs.

Therefore, the WIRE-TEMP technology ensures an optimal process efficiency, which is distinguished by continuity and repeatability of the process.

The WIRE-TEMP 6050 is designed for conductor diameter up to 50 mm

*XLPE: Cross-linked Polyethylene
**CCV: Catenary Continuous Vulcanization
***VCV: Vertical Contiuous Vulcanization

SIKORA SALES MEETING IN BREMEN

"Together we can achieve more"

This year, employees from all 12 SIKORA offices came together for the annual Sales Meeting at the headquarters in Bremen. During this week information, ideas and experiences were exchanged, new strategies were defined together and solutions for customer requirements were found.

For SIKORA it is important to equally integrate all business units, divisions and offices in the daily business. Due to flat hierarchies and an open communication strategy, employees are always encouraged to share their ideas and visions. During the Sales Meeting, this exchange gets a special platform.

On July 13th, 2015, approx. 30 Sales Managers from offices around the world arrived at the Hanseatic City Bremen. The coming week had a tight schedule with trainings and product presentations. "For us, it is important to use the time we have with our Sales Managers on site as effectively as possible, " says Harry Prunk, member of the board at SIKORA AG. "We know what our employees achieve throughout the year and appreciate their unique experiences that are exchanged at the Sales Meeting."

SIKORA also uses these meetings to provide the most current and precise information on products and their applications for their employees. In this way, the work at the offices is sustainably supported and customers benefit from it. "Even after 10 years with SIKORA I still appreciate all the information and backgrounds, which are provided at the Sales Meeting, as I am able to address customers more directly and realize their wishes", summarizes Jhonathan Ruiz, Business Development Manager SIKORA INTERNATIONAL CORP.

SIKORA Sales Team 2015

SIKORA IS ONE OF THE BEST EMPLOYERS

Prestigious ‚Top Job' certificate for the Bremen based company

SIKORA AG was awarded with the recognized ‚Top Job' certificate at the "Deutsche Mittelstands-Summit" (German medium sized companies' summit). Three factors were especially important for the commendation: the satisfaction of the employees in their work environment, their identification with the company and products as well as the quality of the leadership.

SIKORA succeeded in all of the categories and gathered additional points in the areas of culture and communication as well as internal entrepreneurship. With the pleasant working atmosphere and the open office design, the company with 200 employees worldwide encourages the solidarity and community spirit of the employees.

„We are all very proud of the ‚Top Job' award", says Dr. Christian Frank, CEO of SIKORA. "Naturally, we are going to use the ‚Top Job' analysis to improve our employer qualities even further. We are doing this, because we know that committed employees are an essential success factor for our company."

SIKORA employees are distinguished by high qualification, strong commitment and a pronounced identification with the company and its products.

Therefore, you as a customer benefit from constantly interesting innovations as well as quality and reliability „Made in Germany".

SIKORA convinces Top Job Jury


Dr. Armin Holle
Director Research and Development, SIKORA AG

NEW DIRECTOR OF THE RESEARCH AND DEVELOPMENT DEPARTMENT AT SIKORA AG

Dr. Armin Holle about his change to SIKORA AG

In August 2015, the research and development team of SIKORA AG received support by Dr. Armin Holle. As director of the Research and Development department, the graduated physicist will be using his work experience of 28 years to further promote the development of SIKORA devices. In this exclusive interview, you will learn what Dr. Holle has planned for the future of SIKORA AG.

Give us a word that describes your work style.

I think my work style is best described by the fact that it is not possible to describe it with a single word.

Thanks to my calm and reflected personality, for example, the word "considerate" comes to my mind. I do not make rapid decisions. Furthermore, I do not hold on to my opinion come what may. I am always open for constructive ideas and a successful exchange of ideas.

When I am looking for the right solution, I can be very "persistent". Especially in my role, the solution does not always come over night. For me the attraction is to sink my teeth into a project and to accompany the development at every step.

My richness of ideas certainly helps. As an "inventor" I am always trying to think objectively. This way, new products and processes can be achieved sometimes by taking an unconventional route.

At last, I would like to use the word „agile". First, you have to internalize that challenges have to be tackled. Only then, can you accept a challenge with consideration and commit yourself to finding the solution and reaching the goal in an inventive way.

Which moments would you describe as the most crucial in your career?

In development, we do not live by single moments – as the name suggests something has to be developed and this takes time. I would rather call it opportunities, and to take up on opportunities made an impact on me over the years.

At the beginning of my career, I received the exciting opportunity to establish and promote the development of an entirely new technology. The challenge was to think against the mainstream and not to get distracted by already existing alternatives, and finally to achieve an internationally leading solution, whose development I accompanied at every step. This had a lasting effect on my "hands-on" approach.

Naturally, the opportunities that I received due to the acceptance of the responsibility and new tasks also played an important role.

The best opportunities in my career, however, were the many small and big inventions that made the products competitive on the market. These are the real milestones of a successful career.

How will SIKORA benefit from your knowledge and experience?

I am in the fortunate position that I have already worked in a company that went through the process moving from a medium-sized company to a far bigger one and know the single steps and requirements accompanying such a process. Furthermore, I know what lies ahead in my role as director of the R&D department. In summary, I am bringing my expertise in process development and I am planning to use it strategically.

Furthermore, in my opinion, there is always a solution to any technical challenge – you just have to identify it. Personally, I find myself creative in this regard and a company like SIKORA – being in an exciting growth phase – can only benefit from this.

What do you want to achieve at SIKORA and how would you define success?

SIKORA is characterized by a strong culture for innovation. The main reason for this is that Mr. Sikora had never been satisfied with standstill and mediocre solutions since the founding of SIKORA AG, but has provided the company with new inventions and ideas for over 40 years. Fortunately, he transferred this philosophy to the employees.

It is my intention to continue this successful culture of innovation. First, I have to learn and understand the internal processes and procedures in order to be able to combine them with my experience. In the future, the already efficient company characteristics will be strengthened and the employees will be motivated by structured processes. Only then, one's potential can be exploited to the fullest.

When our products exceed the products of other market participants with regard to the customer's benefit and the customers realize this and are inspired by our products – this is what I call success!

What attracted you to your new position at SIKORA AG

Over the years, I have gotten a little bit stuck in old habits and the way I approach issues. The time was just right for a fresh start. SIKORA offers me the possibility to step back in time into a smaller company and to successfully take on new challenges. It is important for employees and the company to challenge one another and to consider new approaches and ways of thinking.

Moreover, SIKORA AG has all the characteristics that I am looking for as an employee. I am already looking forward to the years to come and to work in collaboration with a strong team.

Mr. Dr. Holle, many thanks for this interview!

SIKORA MAINTENANCE PROGRAM

Experience for more efficiency

Reliability – The core of the SIKORA service philosophy. With a measuring, control or inspection and sorting device from SIKORA, you ensure reliable quality and measurements for your production over many years. This is also testified by the strong availability values up to 99.98%. In order to use this reliability together with a carefree package, SIKORA offers maintenance programs that are specially tailored for your production and needs for one, three or five years.

What we offer

Within a quarterly, semi-annual or annual cycle, SIKORA service technicians take on general functional and safety tests as well as the basic cleaning, the setup check and the calibration according to measuring standards. Nevertheless, regularly maintained devices work more reliable. A fact we will give you in writing with our calibration certificate, that you may pass on to your customers.

Your advantages

Thoughts regarding wearing parts or timely re-ordering as well as the correct installation are a thing of the past. SIKORA service technicians plan their visit at your plant thouroughly and bring all necessary parts and tools in order to guarantee a professional exchange and installation.

Naturally, we provide an intensive training for the operator and internal technicians. This way, a professional handling of the devices as well as the reduction of operating errors can be ensured.

Furthermore, you benefit from the long-term qualification of our service technicians and their experiences at plants all over the world as they will help you to find improvement potentials for your production process.

Device-specific maintenance for the X-RAY 6000

(diameter/wall thickness/eccentricity measuring system)

- Check of the X-ray intensity, safety and cooling water circuit
- Cleaning of the measuring zone and electronics
- Check of all test voltages
- Inspection of the device with diagnosis software

Calibration Statement

All calibrations are performed according to specifications of DIN EN ISO 9001. The issued calibration certificate documents the tracing back to national measurement standards in order to demonstrate the measurement units in accordance to the International System of Units (SI). The data given in the calibration certificate fulfill the requirements of DIN EN ISO/IEC 17025. Besides that, a clear statement about the status of the device is given as well as the fact, if the device operates according to device specifications.

Comprehensive preperations are essential for a successful installation of the device

CONCENTRICITY IN CABLE PRODUCTION LINES

Process optimization with the SIKORA CENTERVIEW 8000
Part 1: How to master challenges posed by rotating/oscillating conductors

Today, wires and cables, especially installation, automotive, and control wires as well as coax and communication cables, have to meet ever-increasing quality requirements. Accordingly demanding are production processes. With regard to conductor concentricity in the insulation, cable diameter as well as ovality, measurement values with tight tolerances of a few micrometers have to be maintained. The challenge is to reliably detect possible oscillations/rotations or bends of the conductor prior to the extruder.

In this two part series about concentricity during production of wires and cables, we are introducing the innovative measuring system SIKORA CENTERVIEW 8000. We will discuss how to ensure the process optimization and quality at the extrusion line by using the detailed measurement and display of single measuring values.

The measuring system is based on optical and inductive measuring technique. The inductive measuring system, which is positioned between two optical measuring planes, can determine the exact position of the conductor. With the optical system, the position of the cable is measured. An eccentricity value occurs when both positions differ from each other.

With the standard display of the 8-point eccentricity measurement, the operator is able to detect a common eccentricity and to adjust the crosshead accordingly. As a permanent, rotating eccentricity cannot be recognized, SIKORA offers, beyond the standard display, a vizualization of 5,000 single measuring values in a scatter plot on the ECOCONTROL. Therefore, short-term deviations can be reliably detected and line settings can be optimized.

Oscillation of the conductor

Slight oscillations of the conductor directly before the crosshead can lead to significant deviations of the concentricity, especially if the conductor is oscillating in one plane or rotating. Such deviations during production require reliable recording and visualization especially of the eccentricity values, which are displayed on the optional SIKORA ECOCONTROL.

Detection of oscillating eccentricity values

With a scan rate of 2,500 measurements per second, the measuring system records oscillating eccentricity values with high single value precision. These are visualized in the form of a scatter plot. Each dot represents a single value of the eccentricity concerning value and direction. The overall distribution of the scatter plot highlights the standard deviation of the eccentricity. The standard way of representing eccentricity using a cross-section of the cable is additionally helpful for the operator when centering the crosshead.

Conclusion

The technology of the CENTERVIEW 8000 allows the visualization of short-term variations of the eccentricity on the processor-based display and control devices. This is possible due to the combination and arrangement of two optical measuring planes, an inductive measuring principle as well as the additional way of visualization in form of a scatter plot.

The technology lays the foundation of a change in the guiding of the conductor in the crosshead to avoid oscillation.

In the next edition of the SIKORA EXTRA, we are showing you challenges and possible solutions for angle position and bend of a conductor during the extrusion process.

KNOWLEDGE: TOTAL COST OF OWNERSHIP

Where purchasing pays off

The decision for larger investments in production lines always starts with extensive research. Next to technical aspects, further factors, such as expected quality, reliability and durability of the capital goods as well as the service provided by the manufacturer, have to be taken into account. Nevertheless, all costs starting after the purchase are of special interest.

Those costs consist of several single positions, which are best visualized in a "Total Cost of Ownership" matrix. Here, all costs from the purchase to the scrapping can be entered and are considered.

Savings using the SIKORA technology

If you decided for a measuring, control, inspection or sorting device of SIKORA, unplanned downtimes are minimal due to the fact that no moving parts are used. Furthermore, the installation and commissioning can be performed by a qualified service technician. Our employees have gathered experiences for years, which they are willing to share with you in order to find the optimal setup for the devices. That decreases planning and technical service costs for you.

Aquisition costs	Operating costs
• Purchase price	• Spare parts • Planning (Commissioning and Maintenance) • Training of employees

Rough concept of a „Total Cost of Ownership" matrix

A SIKORA service technician will not leave a customer until the training of all responsible employees regarding attendance and operation of the devices is completed. That guarantees the optimal operation of the devices in your production – furthermore, trained employees need less time for "Learning on the Job".

Amortization

Using the "Total Cost of Ownership" matrix for the example of the SIKORA LASER Series 6000, it becomes clear that the proportion of aquisition costs compared to operating costs is strongly decreasing over time.

As SIKORA systems measure with the same precision as on the first day without any additional calibration and often don't need spare parts, the investment is amortized already after a short time. Alternative technologies, which might be less expensive at the purchase, often cause higher operating costs for spare parts as well as maintenance.

But the biggest savings made possible by SIKORA technology concern the end product. Best quality and repeatable process stability in the line – That pays off!

Raffle

SIKORA Anagram

The answers have been mixed up a little bit. Put the letters in the right order and find the correct solution.

1. Which annual meeting for sales manager of all SIKORA Offices taskes place at SIKORA's headquarter in Bremen?

MITGELASSENE

			2									10	

2. Which award has been presented to SIKORA in 2015?

BOPTOJ

		1			9	

3. Who ist the new director of the research and development division of SIKORA AG? Dr. …

MALOHERINL

	3		8							

4. Which SIKORA device measures the temperature reliably and precisely?

WRTMIEEP

					7	5		

5. Which factor should be considered when calculating the „Total Cost of Ownership?"?

QAIIDEVCULFESRIE

					4										6	

Solution:

1	2	3	4	5	6	7	8	9	10

If you know the answer, send an e-mail until November 13th, 2015 to:
communications@sikora.net

The prize is one of three High-performance-Powerbanks "EasyAcc Monster" with 20.000 mAh! (Picture similar)

Each correct answer takes part in the raffle. Employees of SIKORA AG and SIKORA Holding GmbH & Co. KG and their relatives are not allowed to participate. Each player can only participate once. We value the first e-mail, all subsequent e-mails will be considered invalid. The legal process is excluded.

Good luck!

The correct answer of the last raffle was:

ECOCONTROL

Congratulations to the winners!

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