
# SIKORA EXTRA

Hose and Tube Magazine

New SIKORA key technology for the measurement of large tubes

SIKORA EXTRA
Issue #2/2016
www.sikora.net

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# DEVELOP SUCCESSFULLY.

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## Next Events

Chinaplas 2016
Apr 25 - 28, 2016
Shanghai, China
Booth E1 D41

K 2016
Oct 19 - 26, 2016
Düsseldorf, Germany

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

Dear customers, colleagues and business partners,

For SIKORA, 2016 is characterized by development – especially with regard to our measuring, control, inspection, analysis and sorting systems. Therefore, we are proud to introduce the new key technology, the CENTERWAVE 6000, for the measurement of diameter, ovality, wall thickness and the sagging of large plastic tubes during the production. Due to the innovative millimeter wave technology, the device takes its place in the line of groundbreaking SIKORA developments.

Already at the beginning of the year, we started with the relaunch of our corporate identity. Whether the website's new layout, advertisements with a new image concept or brochures in a new design – starting April 2016, SIKORA communication mediums are more emotional, clearer, blue-white. Discover detailed information on our devices and our expanded service range, such as the new online support and spare part request on www.sikora.net/service to purposefully contact us regarding your SIKORA devices.

At SIKORA, we are continuously working on process optimizations – whether for our devices or for our own organization. This is proven by the renewed re-certification according to ISO 9001, whose seal we are bearing since 1993.

Find information on these and many more developments of SIKORA AG from April 25th to 28th, 2016, at the Chinaplas in Shanghai on our booth E1 D41.

Enjoy reading!
Sincerely,

Dr. Christian Frank
CEO of SIKORA AG

Harry Prunk
Member of the Board of SIKORA AG

# HAPPY BIRTHDAY CHINAPLAS

SIKORA exhibition booth E1 D41 at the 30th Chinaplas from April 25th to 28th, 2016

For more than 10 years, SIKORA has been a firm partner of Asia's largest plastics and rubber exhibition – the Chinaplas. At the first participation in 2005, the Bremen, Germany, based company started with a floor space of 25 m² for the presentation of measurement and control devices. For the 30th anniversary of the worldwide known Chinaplas, visitors can expect almost double as much booth space and even more innovation and future-oriented technologies as well as two new SIKORA devices celebrating their premiere.

**Extended product portfolio**

SIKORA presents the CENTERWAVE 6000. Based on groundbreaking millimeter waves technology, the device measures the diameter, ovality, wall thickness and the sagging of large plastic tubes from 120 to 2,500 mm during the extrusion. Furthermore, the layer thickness of multi-layer tubes are measured reliably. The measurement takes place on several points around the tube circumference and is independent of couple mediums as well as the material and temperature of the measurement object.

*Find more information on the CENTERWAVE 6000 advantages on page 8 and 9.*

Further highlights are the inspection, analysis and sorting devices of the PURITY family. The latest members, the PURITY CONCEPT Systems, will also be presented for the first time at the Chinaplas. Due to the technological innovation and the modular design, the devices are suitable for the online and offline analysis of pellets, flakes as well as films/tapes. Whether X-ray, infrared or optical technology, the PURITY CONCEPT Systems guarantee material purity at every application.

The PURITY SCANNER for the online inspection and sorting of plastic materials guarantee that only purest material enters the next production step. The combination of X-ray and optical technology reliably detects contamination from 50 µm on the surface and inside the pellet, which are sorted out.

**The SIKORA booth E1 D41**

With the LASER Series 2000 and LASER Series 6000, SIKORA offers a broad product range of classic and high-end diameter measuring devices for quality assurance in the hose and tube industry. This product range is completed by the X-ray measuring system X-RAY 6000 PRO, which measures the outer and inner diameter,

## Then



First SIKORA booth at the Chinaplas 2005

三十届
30TH EDITION

the wall thickness of up to 3 layers as well as the concentricity and ovality.

Visitors can also convince themselves of the innovative double sensor technology of the LUMP 2000 lump detector as well as the high-quality standard for surface inspection and cost saving possibilities of all SIKORA devices.

**We are looking forward to seeing you in Shanghai.**

**Wanbin Chen, President SIKORA ASIA**

"By using SIKORA measurement and control technologies and thus, the high product quality guaranteed by SIKORA measuring devices, many Chinese companies increased their success substantially and are strengthened in their position on the global market."

# Now



SIKORA booth at the Chinaplas 2015

# AUDITED QUALITY

## SIKORA is again certified according to EN ISO 9001

Quality is a combination of fulfilled requirements and expectations towards the end result. Therefore, for SIKORA quality of the measuring, control, inspection, analysis and sorting systems is defined among other things by the fulfillment of customer requests, the reliability of installed parts and thus, the durability of the devices as well as the professionalism, with which the devices are developed and produced. For that reason, processes were created and perfected, which have been awarded with the EN ISO 9001 certificate for over 20 years.

### Quality management standard EN ISO 9001

The international standard EN ISO 9001 describes requirements that have to be considered when creating and maintaining a quality management system respectively a method of the company management. Target of such a system is the audit and continuous improvement of the system quality, process quality and product quality. SIKORA has been certified since 1993 and passes each yearly surveillance audit as well as recertification audit every third year successfully.

* With the aim to make all ISO management system standards (e.g. environmental protection, occupational safety, energy, information security) more compatible, a basic structure was created that will be applied to all management system standards. This means that all standards will get a uniform structure on the High Level. Furthermore, fundamental core texts, terms and definitions are standardized.

### Quality management at SIKORA

Quality management should be practiced continuously. Therefore, SIKORA introduced quality business principles that support employees in the decision making process or work flows. Some of these principles are:

- Explicit determination of customer wishes and definition of product requirements
- Embedding of quality responsibility by self-examination in executing divisions
- Regular information and knowledge transfer
- Development of employees with the best possible qualification

Naturally, these principles as well as the quality management system are continuously developed and adjusted to the most current requirements. As an example, SIKORA already started to integrate new areas of the EN ISO 9001:2015 standard (risk management and knowledge management) into company processes. By using the new High Level Structure*, the new requirements are integrated into existing quality management documentations.

### Advantages of the certification

The certification according to EN ISO 9001 is voluntary. But SIKORA understands the enormous added value, especially regarding all interested parties. These include the employees that benefit from an organized company providing safe jobs and especially customers that can rely on the compliance of international regulations and standards.

SIKORA is certified according to ISO 9001

# NEW SIKORA WEBSITE

## Aiming at efficiency – www.sikora.net

**In anticipation of the K 2016 trade show in Düsseldorf, SIKORA presents itself online in a new design. The new layout of the website, ready for PC, tablet or smartphone, guides users intuitively and unerringly to the right product, the most suitable service or spare part and offers interesting facts about the traditional family-owned company from Bremen, Germany.**

At the start of the relaunch project, four essential conditions for the new homepage were defined: intuitive operation, clear presentation of all services, modern layout and a responsive design supporting the claim "Technology to Perfection" and the innovative orientation of the company. Nevertheless, the focus was put on the concept of supporting customers in every situation and facilitating the collaboration.

### Comprehensive product portfolio

Direct access via the industries or all devices at one glance – SIKORA offers different entry opportunities to the comprehensive product portfolio of measuring and control devices, inspection, analysis and sorting systems. By means of filters for functions and applications suitable products for every production are found. Naturally, SIKORA offers clearly arranged technical data and detailed information for each product.

### Custom-fit services

Professional services regarding individual consulting, the installation and commissioning as well as the regular maintenance: a detailed overview of all services is found on the "Service" page. Furthermore, customers have the opportunity to contact the SIKORA service team online regarding support and spare part requests.

### Interesting facts on SIKORA

A traditional family-owned business with a global approach and more than 40 years of experiences has a lot to tell. The area "About SIKORA" covers the most important milestones of the SIKORA development in Bremen and worldwide. Additionally, the practical newsroom lists all up-to-date press releases, videos and technical articles. Only the SIKORA Twitter account, which is accessible at several places throughout the pages, offers even more topics.


More service due to the new online support and spare part request

# ADVANTAGEOUS – CENTERWAVE 6000

## Promising technology for the production of large tubes

**SIKORA is the expert for optical measurement methods for quality assurance at the extrusion of hoses and tubes as well as for innovative X-ray technology for the measurement of additional product parameters. Furthermore, for the measurement of diameter, ovality, wall thickness and the sagging at the extrusion of large tubes from 120 to 2,500 mm, SIKORA offers a completely new key technology. This is based on millimeter wave technology and impresses with the independent adaptation to the extruded plastics. The range of application covers all typical plastic tubes, such as PE, HDPE, PP, PVC etc. In the following article, the three SIKORA technologies for the measurement of product parameters are described.**

### Measurement via Laser technology

For the measurement of diameter, the 2- and 3-axis gauge heads of the LASER Series 2000 are optimal to guarantee quality assurance, process optimization and stability during the production of transparent and non-transparent hoses and tubes at a diameter range from 0.05 to 500 mm. The high-end diameter measuring systems of the LASER Series 6000 also measure transparent and non-transparent hoses and tubes. Furthermore, due to the high measuring rate of 5,000 measurements per second, they offer the reliable detection of lumps and neckdowns.

### Measurement via X-ray technology

For the quality assurance in extrusion lines of hoses and tubes with a diameter from 0.65 to 270 mm, the X-ray measuring devices X-RAY 6000 as well as X-RAY 6000 PRO are the suitable technologies. They provide reliable measuring data regarding diameter, wall thickness, concentricity and ovality continuously and therefore, make it easy to comply with the required product specifications. Up to three layers of different materials are measured and, thanks to the automatic control of the line speed or extruder rpm, optimally adjusted.


New key technology for the production of large tubes – CENTERWAVE 6000

### Measurement via millimeter wave technology

The CENTERWAVE 6000 is a groundbreaking, innovative key technology for quality assurance at the extrusion of large tubes. Several static or rotating transceivers around the circumference are continuously sending and receiving frequency modulated millimeter waves and measure online diameter, ovality, wall thickness and the sagging of large plastic tubes during the extrusion process – contact-free and µm-precise.

The millimeter waves technology of the CENTERWAVE 6000 for larger diameters up to 2,500 mm is especially advantageous as it measures independent of couple mediums and other impacts, such as the temperature of the measuring object or the environment. The innovative concept of the measuring system is self-adapting to the various materials and requires therefore no calibration by the operator. Measuring results are, even after years, as precise as on the first day.

**Dr. Armin Holle**
**Head of the research and development department, SIKORA AG**

"The CENTERWAVE 6000 by SIKORA stands for µm-precise reproducibility of processes and quality assurance during the extrusion of large tubes at interesting prices."

**Discover the laser, X-ray and the new millimeter waves technology from April 4th to 8th, 2016, at the wire/tube in Düsseldorf, Germany – booth 9A41.**

# SIKORA STARTS A NEW ADVERTISING CAMPAIGN

## Technology in its most beautiful form

For more than 40 years SIKORA, a technology company from Bremen, listed as one of the hidden champions of Germany's mid-size companies, has been standing for quality, service and cost saving in the area of measuring, control, inspection, analysis and sorting systems. During this time, special attention was paid to innovation. This does not only apply for the future-oriented research and development work – also the external appearance is always one step ahead.

### Discover „Technology to Perfection"

An example of this innovative orientation is the new advertising campaign that uniquely presents SIKORA devices in use. "Nowadays, pure product pictures are not sufficient anylonger to stand out from the technically oriented environment", explains Katja Giersch, Head of Corporate Communication at SIKORA AG, the challenge of the new advertising campaign, which has been placed in hose and tube as well as plastics trade magazines worldwide since the beginning of 2016. "Therefore, we consciously combined the technology with people, in order to offer the viewer a functional and emotional access. Presented are SIKORA products in a manufacturing environment. Furthermore, each image shows a SIKORA employee, who is responsible for the development, assembly or service of the corresponding device. We are demonstrating therefore, that our products are backed by a strong team", says Katja Giersch.

### Emotional. Clear. Blue-White.

The unique image style, which was specially created for this campaign, underlines the innovative orientation of the technology company. Furthermore, the color scheme changed: instead of a minimalist black design, SIKORA puts the focus on clear blue and white shades, which support the expressive large image stages perfectly.

The advertisements are completed by a communication area, on which all benefits of the displayed technology are clearly highlighted for the user.


**SIKORA**
Technology To Perfection

# Quality in its perfect form.

With passion, we develop future-oriented measuring and control devices for quality assurance of hoses and tubes, such as the **X-RAY 6000 PRO**. An innovative solution with X-ray technology that precisely measures all product parameters, increases product quality and saves costs.

- high-quality products by continuous measurement of the wall thickness, concentricity, the inner and outer diameter and ovality of up to 3 different material layers
- automatic control under consideration of minimum values in combination with powerful processor systems
- repeatable processes


www.sikora.net/xray6000

Chinaplas 2016

Visit us from April 25th to 28th, 2016, at the Chinaplas in Shanghai.

**Booth E1D41**

# SUCCESSFUL CONCEPT: TRANSPARENCY MEASUREMENT

## Suitable for all applications: LASER Series 2000 and 6000

For more than two decades, SIKORA has been using the combination of laser technology and CCD sensors in the LASER Series 2000 and LASER Series 6000 for diameter measurement of hoses and tubes. Compared to other methods, which are for example based on light and shadow, SIKORA devices distinguish by more precise values at the measurement of transparent and non-transparent hoses and therefore, offer higher cost saving potentials.

### LASER Series 6000

Industrial design, highest precision and reliability – that are the essentials of the diameter measuring devices of the LASER Series 6000 by SIKORA. With up to 5,000 measurements per second, all with an extremely high single value precision, the SIKORA devices provide an optimal line control and reliable statistical data. Due to the high measuring rate of the devices, a simultaneous detection of lumps and neckdowns is possible. Impressive precision and repeatability for product diameters from 0.2 to 78 mm complete the offer.

### Measurement of transparent products

The unique combination of an intelligent software and powerful high-end hardware of the LASER Series 6000 enables the measurement of transparent products within the diameter measurement device as well.

This application is especially interesting for manufacturers of highly demanding end products. During the production of sensitive products, such as medical hoses, compliance with prescribed dimensions as well as absolute quality is indispensable in order to fulfill the requirements of the medical market.

### LASER Series 2000 T

SIKORA offers with its 3-axis measurement devices of the LASER Series 2000 T high-quality laser technology for diameter measurement, including minimum and maximum values as well as the ovality. Highest precision, reliability and continuous functionality are the outstanding characteristics of the T gauge heads for the diameter range from 0.2 to 100 mm.

### Ovality of transparent products

Also, the 3-axis measuring devices of the LASER Series 2000 T are equipped with special hardware and software and therefore, able to measure the diameter and the ovality of transparent products precisely.



LASER Series 2000/
LASER Series 6000

# PERSONAL CUSTOMER CONTACT AS KEY TO SUCCESS

## Harry Prunk, member of the board, on the SIKORA exhibition year

**The K in Düsseldorf is just around the corner. How important is this exhibition for SIKORA?**

The K is the worldwide leading exhibition for plastics and rubber. Therefore, the K in Düsseldorf is an absolute industry highlight and of tremendous importance. For us, the possibility to meet many customers and simultaneously keeping an ear close to the market is very important to keep up with new requirements at any time.

**Is there anything in particular visitors can look forward to?**

We are proud to present two new devices at once.

Our new CENTERWAVE 6000 is based on innovative millimeter wave technology and therefore, able to measure the diameter, ovality, wall thickness and the sagging of large tubes contact-free and down to µm.

Another highlight are the innovative, modular PURITY CONCEPT Systems that inspect and analyze plastic raw material before it enters the production process. Contamination, color anomalies and inhomogeneities are reliably detected. The Concept Systems are in the same way engineered for raw material manufacturers as for end users.

Additionally, our customers find delicious snacks and refreshing drinks that encourage lingering and interesting talks.

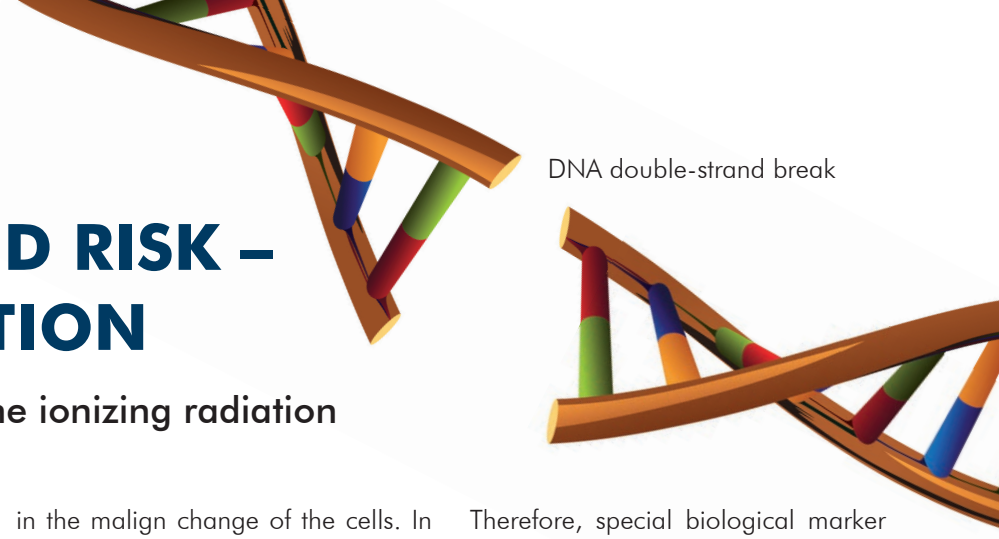
**How do you prepare yourself for the K 2016?**

Although, I have represented SIKORA at exhibitions for over 40 years now, I am still excited when it comes to such special occasions as the K in Düsseldorf. You do not always get the chance to meet as many international customers, partners and business friends to discuss and develop optimization plans for production sites worldwide.

**What other highlights does this year has to offer for SIKORA customers?**

For SIKORA, 2016 is an especially exciting year. Our focus is on the continuous advancement and the creation of new developments for our measuring and control systems, for example the LASER Series 2000 T, that is now able to measure the diameter and ovality of transparent hoses. A further focus is on the growth of competence in the segment of inspection, analysis and sorting of plastic materials, as they are used, for example, in the cable industry. In addition, we introduced our new Corporate Identity with a new layout and design for our communication media, such as the website, advertisements etc. already at the beginning of the year.

Interview with Harry Prunk, Member of the board SIKORA AG



DNA double-strand break

# BLESSING AND RISK – X-RAY RADIATION

## Several applications for the ionizing radiation

With its moderate radiation, the sun makes all life on earth possible. Nevertheless, humans should not expose themselves for too long to the radiation. Protection is especially necessary when it comes to the invisible, hard ultraviolet rays of the sunlight and hence, the risk of possible skin changes.

### X-ray radiation

X-rays, with a spectrum starting where the hard UV radiation devolves to ultra-hard UV radiation, proved as a blessed instrument for many areas, especially for the medical diagnosis and cancer therapy. Also, the X-ray radiation has become indispensable over the last decades for valuable applications in the industrial area.

While the energy of the UV radiation rate of the sunlight shows only low penetration regarding the human skin, X-ray radiation is able to penetrate the tissue completely. In both cases, damages of cells in the skin respectively the body may occur, which can result in the malign change of the cells. In principle, all substances of a body cell may be damaged but eventually only damages regarding the hereditary material (DNA) is of importance.

Single and double-strand breaks of the DNA are not only caused by X-ray radiation. Nowadays it is a common understanding that oxygen radicals, produced by the metabolism of a cell, continuously cause DNA changes. Modern methods proved that on a daily basis between 0.1 and 5 DNA double-strand breaks occur per cell. This number is increased with the progressive age. 99.9% of these damages are eliminated by the endogenous repair mechanism in the cells. If this is this not possible, the defect cell is replaced by a new cell.

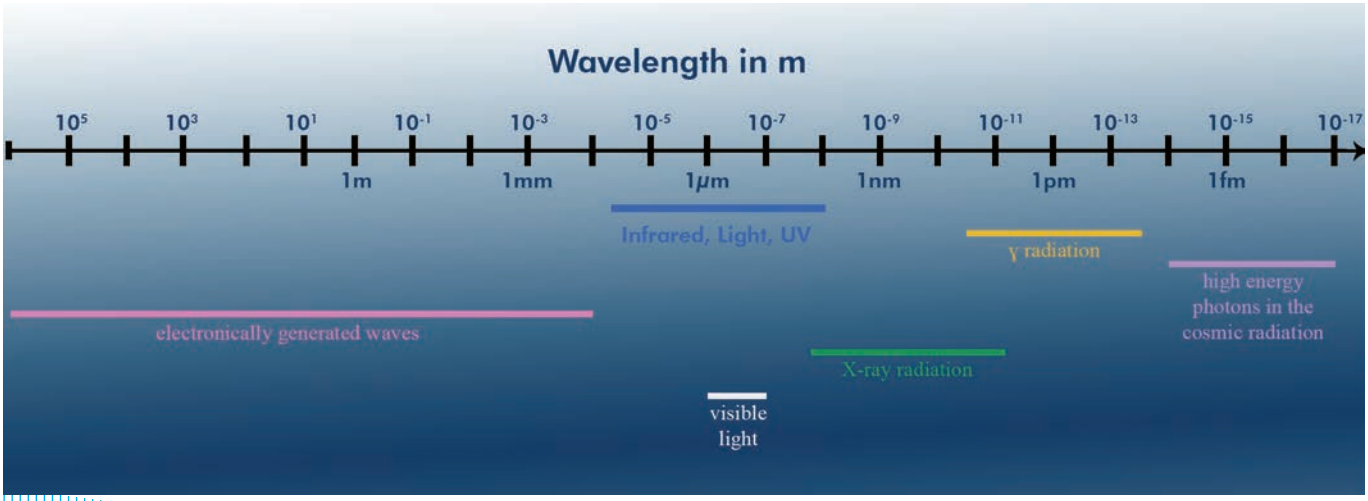
### Evidence of radiation damages

Exposure to ionized radiation contains relative risk. Today, the biological dosimetry is an international recognized method to estimate the dose of a possible excessive radiation exposure. Therefore, special biological marker are used, which are like fingerprints in irradiated cells.

### Save handling with X-ray devices

Just as clothes offer protection against the ultraviolet radiation of the sun, also X-rays can be shielded by suitable materials. Materials with a so called high atomic number are especially suitable. Relevant in this context are steel, copper and lead. By using this materials, the X-ray radiation of medium energy, as it is used in industrial measurement technology, can be weakened so much that the omnipresent background radiation on the outside of such a device is only slightly or not at all increased.

Unlike radioactive isotopes, which radiation can only be shielded but not turned off, the radiation of an X-ray device can be switched off. Without the anode voltage for the X-ray tube, no X-ray radiation is produced. Also, X-ray radiation cannot cause radioactivity in irradiated materials as the



energy of the X-ray radiation is too low to create radiant, radioactive isotopes. Even the X-ray tube, just like all other inner components of the X-ray device, is completely free of radiation after the deactivation of the anode voltage and can therefore be handled unconcernedly.

**Blessing and risks while handling X-ray devices**

An especially positive aspect of the X-ray radiation is its usage when treating malignant tumors in order to destroy degenerated cells of the tumor with high-energy X-ray radiation. This energy sector of about 10 MeV is called gamma radiation.

According to the European directive 96/29/Euratom, X-ray based measuring devices have to be built in a way that its radiation does not exceed the maximum value of 1 µSv/h at a distance of 0.1 m on the outside of the device. This limit is so low that a significant statistical proof for a possible cancer is not possible.
It may sound astounding, but modern researches point to the complete opposite direction. Namely, a small dose of X-ray radiation, similar to the UV radiation of light, stimulates the immune system and therefore, can even be healthy.

# RAFFLE

## SIKORA in the spotlight

Which SIKORA diameter measuring device is under the magnifying glass?

_____



If you know the answer, send an e-mail until May 20th, 2016 to:
communications@sikora.net

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.

## The prize is one of three V7 mobile Bluetooth speaker (Picture similar)

## Good luck!

The correct answer of the last raffle was:

X-RAY 6000

Congratulations to the winners!

SIKORA
Technology To Perfection

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